CONTROL ENGINEERING

EDITORIAL INDEX

CONTROL ENGINEERING VOLUME 37, December 1990—VOLUME 38, October 2nd Edition, 1991

(2E) = 2nd Edition; (LS) = Literature Showcase; (BLPG) = Board Level Product Guide;

ACTUATORS APPLICATION SPECIFIC Silariers, Batch, Michael Sept 50 Down, One to Go, Bisckiey, George Down, One	A			В			Control International: The Fu-			COMPANIES		
Starters, Babb, Minhaul Sarters, Babb, Minhau			_			_	ture of Manufacturing Indus-	Cont 1	10	Allen-Bradley Hoists 1771 Flag;		
ACTUATORS Corrownestary: Getting Control Loops Bisk in the Felicial Control International Loops Loops Bisk in the Felicial Loops Loops Bisk in the Light of Div. Bisk Loops Loops Bisk in the Light of Div. Bisk Loops Loops Bi	AC DRIVES							Sept	18			
ACTUATORS Business Directions: Oxfood for Control Mand, Biskley, Logs Back an the Fall. Copes Back an the Fall. Copes Back an the Fall. Control International: ABB Notes Process Automation States, Control St							Editorial: American DCS Tech-				April	85
SETUATIONS Commentary (My Control) Commentar	Starters, Babb, Michael	Sept	50				nology Prospening in the U.K.,	fusion 6	27			
ACTUATORS Commentary delating Control Commentary (ething Control Commentary (ething Control Needs Smart Actuators). Sept 147 Interference of Sept					Sept 1	3		July 2	21		July2E	17
Commentary Centrel Control Loops Back in the Field, Loops Back in the Field, Compass, Edward Loops Back in the Field Control International ABB Control International International ABB Control International Internati	ACTUATORS											
Loops Back in the Field Commentary Why Control Section Control Sect								0	200	Brick by Brick, Babb, Michael	Mar	54
Konipass, Edward Commentary Wity Control Needs Smart Actuators, Screen and Stepper, Bibliothys of In Tank Gage. Blickley, There are the French Coalition Forces, Barry and Stepper, Bibliothys of In Tank Gage. Blickley, There are the French Coalition Forces, Barry and Stepper, Bibliothys of International Control Research State, Marks Lichage With Part State Commentary on Control Cortes Automation, Dickles Process Automation Cortes State Control Research State, Marks State Control Research State, Marks State Control Research				George	July 1	1		Oct 6	53	Control International: ABB		
Commentary: Why Control Needs Process Automation Makeds Process Automation Needs Commentary: Why Control Regiment Control Needs Process Automation Needs Process Automatical Needs Process Automati		Oct 2	161	Control International: ABB								
Needs Smart Actuators, George Control Business Directions: Special Special Control Business Directions: Special Control Business Dir		OCI 2	101	Hosts Process Automation						"Summit" in Sweden, Boult	Oct	22
Sept 147 Commentary on Control Composition Sequence 19 Sept 29 Sept 39 Sept				"Summit" in Sweden, Boult,				June 4	43	Control Business Directions:		
Lumitorque Entrers DCS Market. May 81 Sincidiale, Robert. May 81 Servo and Slepper. Both Used in Tank Gage, Blickley. April 35 Commentary on Cortrol: Composition of Control and PID Algorithms, Kompass, Edward. Commentary on Cortrol: Composition of Control: Commentary on Cortrol: Composition of Control: Commentary on Cortrol: The East of Measurement Techniques. Signal Conditioning Continues Dipplied and Globol Trands, La-dustrians, Blickley, George Cortrol: Signal Control: Commentary: Why Control:		Comt 4	47	Raymond	Oct 2	22				Control Business Still Grow-		
of New Ones, Lodgerwood, Byron. Goother Serve and Stepper. Both Used in Tank Gage. Blickley. April 81 Commentary on Control: More Commentary o		Sept 1	4/					Sept 4	49	ing, Blickley, George	May	13
Signa Delta AD. ANALOG-TO-DIGITAL CONTENTED Signa Edicition (Commentary on Control: U.S. Groups Betta AD. Commentary on Control: U.S. Groups Betta AD. ANALOG-TO-DIGITAL CONVENTERS Signa Delta AD. July 45 Commentary on Control: U.S. Groups Betta AD. July 57 Commentary on Control: U.S. Groups Betta AD. July 67 Commentary on Control: U.S. Groups Betta AD. July 68 Commentary on Control: U.S. Groups Betta AD. July 69 Commentary on Control: U.S. Groups Betta AD. July 69 Commentary on Control: U.S. Groups Betta AD. July 60 Commentary on Control: U.S. Groups Betta AD. July 60 Commentary on Control: U.S. Groups Betta AD. July 77 Commentary on Control: U.S. Groups Betta AD. July 78 Control Business Directions: Looking to Rev Markets, Logistrood. Control Business Directions: July 61 Commentary on Control: U.S. Groups Betta AD. July 79 Control Business Directions: Looking to Rev Markets, Logistrood. July 70 Commentary on Control: U.S. Groups Betta AD. July 70 Control Business Directions: Looking to Rev Markets, Logistrood. July 71 Control Business Directions: Looking to Rev Markets, Logistrood. July 70 Commentary on Control: U.S. Groups Betta AD. July 70 Control Business Directions: Looking to Rev Markets, Logistrood. July 71 Commentary on Control: U.S. Groups Betta AD. July 70 Control Business Directions: Looking to Rev Markets, Logistrood. July 71 Trends in Control: Control City Industry Shows Good Performance, Built Have the Markets Betta Control Fromers Signa Delta AD. July 70 Control Business Directions: Looking to Rev Markets, Logistrood. July 71 Trends in Control: Control City Industry Shows Good Performance, Built Have Control Fromers Signa Delta AD. July 70 Control Business Directions: Looking for New Markets, Logistrood. July 71 Trends in Control: Control City Industry Shows Good Performance, Built Have Control Fromers Signa Delta AD. July 70 Control Business Directions: Control Business Directions: Looking for New Markets, Logistrood. July 71 Trends in Control: Frome La							Editorial: Square D Encounters					
Commentary on Control Compositions (Commentary on Control Compositions) Smaller Steps, More Useful Output Place Siley Motors and Controls, Bartos, Prark. Oct. 146 O		May	81		Oct 26	92	the French Coalition Forces,					
poter Control and PID Algo- relations Usage. Nore Useful Output Pace Step Motors and Controls, Barros, Frank				Commentary on Control: Com-			Babb, Michael	Mar !	53			
mithms, Kompass, Edward Commercian of Changes in Industry on Control Commercian of Changes in Industry on Control Commercian Changes in Industry Control Standards and Regulations, Bickley, George Date of Standards and Regulations Date of Standa							Mesucora Highlights PLCs and				Aug	13
Commentary on Control: More Commentary on Control: More Commentary on Control: Serios, Frank. Commentary on Control: More Commentary on Control: More Commentary on Control: More Commentary on Control: More Standards and Regulations. Blickiey, George — Oct 1111 Commentary on Control: U.S. Genneratary on Control: The Serios Standards and Regulations. Blickiey, George — Oct 1111 Commentary on Control: U.S. Giving Data And Control: The Spiral Control on Commentary on Control: U.S. Giving Data And Control: Commentary on Control: U.S. Giving Data And Control: Spiral Control on Commentary on Control: U.S. Giving Data And Control: Spiral Spiral Control: Spiral Control: Spiral Spiral Control: Spiral April 135 (Spiral Control: Spiral April 136 (Spiral Control: Spiral Spiral Control: Spiral April 136 (Spiral Control: Spiral April 136 (Spiral Control: Spiral Spiral Control: Spiral Spiral Control: Spiral April 136 (Spiral Control: Spiral Spiral Control: Spiral April 136 (Spiral Control: Spiral Spiral Control: Spiral April 136 (Spiral Control: Spiral Spiral Control: Spiral Spiral Control: Spiral Spiral Control: Spiral Control: Spiral Spiral Spiral Control: Spiral Spiral Control: Spiral Spiral Control: Spiral Spiral Control: Spiral Spiral Spiral Control: Spiral S		April	81		June 11	13	Measurement Techniques.					
Comments on Changes in Indicators Changing to Centrol, Repairs of Control, Repairs of Centrol, Repairs of Repairs of Centrol, Repairs of Rep								Sept !	59			
Control, Barton, Frank. Weive and Actuards Changing of New Markets, Edgerwood. Byron. ANALOG-To-Digital Conditioning Continues Digital and Global Brends, Labor Processor Control Susiness Directions: Control Rusiness Direc											lune	13
Valvets and Actuators Changing to Need Standards and Regulations, Blickley, George. Oct 11 Oct 11 Oct 12 Oct 12 Oct 12 Oct 13 Oct 14 Oct 15 Oct 15 Oct 15 Oct 15 Oct 16 Oct 17 Oct 17 Oct 17 Oct 18 O	Controls, Bartos, Frank	Oct 1	46								Julie	10
Trends in Control: An Integrator's Opportunity, Legistry, George Control Cuthbacks Stabilize, Legistry, George Control George Control Cuthbacks Stabilize, Legistry, George Control Specific Control Specific Control Specific Control Specific Control Cuthbacks Stabilize, Legistry, George Control Cuthbacks Stabilize, Legistry, George Control Specific Control Specific Control Specific Control Specific Control Specific Control Cuthbacks Stabilized Control Specific Control Specific Control Control Specific Control Specific Control Specific Control Control International Standard Control Specific Control Control Internati	Valves and Actuators Changing				April 13	15		Mar 1	58			
ANALOG-TO-DIGITAL CONVENTERS Signal Conditioning Continues Digital and foliolar Brends, Lab Growth International Control Signal Conditioning Continues Digital and foliolar Brends, Lab Growth International Control Signal Conditioning Continues Digital and foliolar Brends, Lab Growth International Control Signal Conditioning Continues Digital and foliolar Brends, Lab Growth International Control Signal Conditioning Control Needs Signart Actuators, Signal Conditioning Control Needs Signart Actuators Needs S					mpin 10	30					inn	12
ANALOG-TO-DIGITAL CONVENTERS Signal Conditioning Continues Digital and Global Trends, La- duzinsky, Alan. July 48 Up Front: New Transmitter Uses Signal Date ARD. Up Front: Two New Chips for Control. Control Business Directions: European Control Business Directions: Control B	lations, Blickley, George	Oct 1	111								Jan	13
ANALOG-TC-DIGITAL CONVENTERS Signal Condisioning Continues Digital and Global Frends, La- duzinsky, Alan Upf Front: New Transmitter Uses Signal Delta A/D, Front New Transmitter Uses Signal Delta A/D, Front New Transmitter Uses Signal Delta A/D, Front New Chips for Control. Sept 9 Outroid Business Directions: Control Spending-What and Where, Bickley, George Control. Control Business Directions: Diriting into the New Eo- Bishal A/D, Sept 147 ANALYSIS INSTRUMEENTS Taking Dralurs path Analyzer' Magical Mystery Tour, Mornis, Hernry Alarm, and Monitoring ANALYSIS INSTRUMEENTS Taking Dralurs path Analyzer' Magical Mystery Tour, Mornis, Hernry Alarm Alarms Control Business Directions: Looking for New Markets, Looking for New Look Looking for New Markets, Looking f						-	wood Buren	Ech 1	ne			
CONTROL RESIDENCE CONTROL SIGNAL SIGNAL SIGNAL SIGNAL STATE OF SERVENCE CONTROL BUSINESS DIrections: Light and Global Trends, La- duzinsky, Alan. July 45 Up Front: New Transmitter Uses Signa Bottat A/D. July 77 Control Business Directions: European	ANALOG.TO DIGITAL				Mar 10	3/		F00 1	UO			
Signal Conditioning Continues Digital and Sighal Armound Stead Transfer Uses Signal Delta Armound Transmitter Uses Signal Control Susiness Directions: European Control Susiness Dir											April	13
Commentary: Why Control Digital and Global Tends. La- duzinsky, Allan												
duzinsky, Alan July 45 Needs Sinart Actuators, Kompass, Edward Sigma Delta ArD, July 70 Control Resinance Sigman Delta ArD, July 71 Control Business Directions: Control Resinance Standard Control Business Directions: Business Di	Signal Conditioning Continues				Feb 10	07		June 1	14	Tunnel: Everything is Under		
Up Front: New Transmitter Uses Sigms Deits A/D,	Digital and Global Trends, La-									Control, Boult, Raymond	Jan	20
Up Front: New Transmitter Uses Sigma Date A, PD.	duzinsky, Alan	July	48	Needs Smart Actuators,			Believe, Ledgerwood, Byron	July	90	Control International: Control		
Sigma Delta A(D. July 70 Control Business Directions: Control New Chips for Control, when Chips for Control, when Chips for Control, when Chips for Control Business Directions: If Recession Comes, it Will be Midd, Bioking, George. ANNUNCIATORS, see Alarms, also see Data Display ANTIFICIAL INTELLIGENCE Clear Vision of Fuzzy Logic. Intelligence Control Business Directions: Control Busines	Up Front: New Transmitter Uses				Sept 14	47	Trends in Control: Plenty of					
De Front: Two New Chips for Control Business Still Growing, Blickley, George ALARMS Applications: PLC Voice Advisory, Alarm, and Monitoring Juty2E 26 Tontrol Business Directions: Control Systems Directions: Drifting into the New Economics for the 1990s, Blickley, George ANALYSIS INSTRUMENTS Taking On-Line pH Analyzers' Magical Mystery Tour, Morris, Henry Juty 43 ANNUNCIATORS, see Alarms, also see Data Display ANAUNCIATORS, see Alarms, also see Data Display ANAUNCIATORS, see Alarms, also see Data Display ANAUNCIATORS, see Alarms, also see Otate Display		July	7								.hubr	Int2
ALARKS Applications: PLC Voice Advisory, Alarm, and Monitoring, July2E 26 AMPLIFIERS, see Power Supplies and Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics of the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into New Markets Control Business Directions: Driftin		,						Aug	98		owy	or real.
ALARMS Applications: PLC Voice Adviso- ry, Alarm, and Monitoring. July2E 26 AMPLIFIERS, see Power Supplies and Control Business Directions: Dirifing into the New Economics for the 1990s, Blick- ive, George. Survey of the 1990s Blick- ive, George.		Cont	0		Many 1	12						
ACONTRO! Spending-What and Moplications: PLC Voice Advisory, Alarm, and Monitoring, July 2E 26 MAPLIFIERS, see Power Supplies and Controllers AMPLIFIERS, see Power Supplies and Controllers ANALYSIS INSTRUMENTS Taking On-Line pH Analyzers' Shows Good Performance, Bickley, George — Control Business Directions: Pactory Controls Sales And Supervisors (Control Business Directions: Pactory Controls Sales And Supervisors) ANNUNCIATORS, see Alarms, elso see Data Display ANNUNCIATORS, see Alarms, elso See Data Display ARTIFICIAL INTELLIGENCE Clear Vision of Fuzzy Logic, Infelies, Nick — July 51 East Computers Open the Way For Advanced Control's, Seen Sould Far Control Business Directions: Looking for New Markets, Blackley, George. Control Business Directions: Handward (Control Spending-What and Warkets) Control Business Directions: Looking for New Markets, Blickley, George. Control International: Market of Control Market (Control International: Spending-What (Control International: Control Note (Control International: Market (Control International: Control Note (Control International: Market (Control International: Control Note (Control,	Sehr	3		mary	13						
AMPLIFIERS, see Power Supplies and Controllers AMPLIFIERS, see Power Supplies and Controllers AMPLIFIERS, see Power Supplies and Controllers AMPLIFIERS, see Power Supplies and Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics of the Ne								April 4	26		Aug	16
Control Business Directions: Drifting into the New Econonics for the 1990s, Blickley, George George Gontrol International: Supervision Personal Procession	ALARMS							April 1	30	Control International: Making		
AMPLIFIERS, see Power Supplies and Controllers AMPLIFIERS, see Power Supplies and Controllers AMPLIFIERS, see Power Supplies and Control Insuring Silections: Leave Spender Supplies and Control Business Directions: European Controls Industry Shows Good Performance, Blickley, George Silections: Factory Control Insuring Silections: Factory Control Sales About Even, Blickley, George Spender, Spende	Applications: PLC Voice Adviso-				Oct	13	Trends: Systems Integrators In-			CIME Pay in Europe, Boult,		
AMPLIFIERS, see Power Supplies and Controllers ANALYSIS INSTRUMENTS Taking On-Line pH Analyzers' Magical Mystery Tour, Morris, Henry Maring Analyzers' Magical Mystery Tour, Morris, Henry Maring Analyzers' Magical Mystery Tour, Morris Maring Analyzers' Magical Mystery Tour, Morris Maring On-Line pH Analyzers' Magical Mystery Tour, Morris Magical Mystery Tour, Mo	ry, Alarm, and Monitoring,	July2E	26								June	20
Itely George Ley George Control Business Directions: European Control's Industry Control Business Directions: European Control's Industry Shows Good Performance, Blickley, George Blickley, George Blickley, George Control Business Directions: If Recession Comes, it Will be Mid. Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Marke									48	Control International: Quality in		
ANALYSIS INSTRUMENTS Taking On-Line pH Analyzers' Magical Mystery Tour, Morris, Henry July 43 ANNUNCIATORS, see Alarms, also see Data Display ANNUNCIATORS, see Alarms, also see Data Display ANNUNCIATORS, see Alarms, also see Data Display ANNUNCIATORS, see Alarms, also see Data Ordination of Selections: Looking for New Markets, Blickley, George George George Geart Will be Mid, Blickley, George Blickley, George George Geart Will be Mid, Blickley, George George Geart Will be Mid, Blickley, George	AMDI IEIEDE ana Dawer Cu	anline								Manufacturing Means Reli-		
ANALYSIS INSTRUMENTS Shows Good Performance, Aug 13 Control Business Directions: Eactory Controls Sales About Even, Blickley, George. Control Business Directions: Factory Control Sales About Even, Blickley, George. Control Business Directions: Factory Control Sales About Even, Blickley, George. Control Business Directions: Factory Control Sales About Even, Blickley, George. Control Business Directions: Factory Control Sales About Even, Blickley, George. Control Business Directions: Factory Control Sales About Even, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Lookin		phuas		ley, George	Mar 1	13	Ways,	Oct	9	able Instruments, Boult.		
European Controls Industry Shows Good Performance, Blickley, George. ANUNCIATORS, see Alarms, elso see Date Display ANUNCIATORS, see Alarms, elso see Date Display ANTIFICIAL INTELLIGENCE Clear Vision of Fuzzy Logic, In- lefise, Nich. July 51 Fast Computers Open the Way For Advanced Control Systems, Kompass, Edward July 57 Fast Computers Open the Way For Advanced Control Spottiners Blickley, George. Spinoffis Good for Control Business Directions: Looking for New Markets, Blickley, George. Spinoffis Good for Control Business Directions: Spinoffis Good for Control Business Directions: Spinoffis Good for Control Blickley, George. Spinoffis Good for Control Business Directions: Spinoffis Good for Control Business Directions: Spinoffis Good for Control Business Directions: Spinoffis Good for Control Blickley, George. Spinoffis Good for Control Business Directions: Spinoffis Good	and Controllers			Control Business Directions:			Up Front: Eaton Plans to Pur-			Raymond	April	40
ANALYSIS INSTRUMENTS Taking On-Line pH Analyzers' Magical Mystery Tour, Morris, Henry				European Controls Industry			chase Nematron,	Aug	9			
Taking On-Line pH Analyzers' Magical Mystery Tour, Morris, Henry. July 43 ANNUNCIATORS, see Alarms, also see Data Display ANNUNCIATORS, see Alarms, also see Data Display ARTIFICIAL INTELLIGENCE Clear Vision of Fuzzy Logic, Infelies, Nick Expert System Applications in Advanced Control Systems, Kompass, Edward Avanced Control Systems, Kompass, Edward For Advanced Control Systems, Kompass, Edward For Advanced Controls, Babb, Michael July 51 Control Business Directions: Blickley, George Control Business Directions: Spinoffs Good for Control, Boult, Raymond Blickley, George Control Business Directions: Spinoffs Good for Control, Boult, Raymond Control International: Channel Tunnet: Everything is Under Tunnet: Everythin	ANALYSIS INSTRUMENTS			Shows Good Performance,					9			
Magical Mystery Tour, Morris, Henry				Blickley, George	Aug '	13			-			
ANNUNCIATORS, see Alarms, also see Data Display ANTIFICIAL INTELLIGENCE Clear Vision of Fuzzy Logic, Infelies, Nick Control Business Directions: Looking for New Markets, Blickley, George. Looking for New Markets, Blickley, George. Subject of Systems, Acompass Edward Control Systems, Kompass, Edward Control International: Control International: Control International: Don't Miss the Bus to CliM Boult, Raymond. ASICs (APPLICATION SPECIFIC INTEGRATED CIRCUIT®), see Integrated Circuits AUTOMATED QUALITY CONTROL, see Quality Control AUTOMATED GUALITY CONTROL, see Quality Control AUTOMATIC FACTORY, see Control International: Supervision of Vision of Vehicles Largeest Spender, Aug 9 Up Front: Motor Vehicles Largeest Spender, Aug 9 Up Front: Operator Interface Key Segment, Oct2E 7 Up Front: Paramaceuticals Spends \$512 Million On Industrial Automation, Sept 1 Up Front: Reliance Ramps Up R&D. Up Front: Schneider Seals the Deal on Square D. Up Front: Schneider Seals the Deal on Square D. Up Front: Schneider Seals the Deal on Square D. Up Front: Schneider Seals the Deal on Square D. Up Front: The U.S. Has an Image Problem, Deal on Square D. Up Front: The U.S. Has an Image Problem, Deal on Square D. Up Front: The U.S. Has an Image Problem, Deal on Square D. Up Front: The U.S. Has an Image Problem, Deal on Square D. Up Front: The U.S. Has an Image Problem, Deal on Square D. Up Front: Policial Automation, Deal Deal on Square D. Up Front: Policial Automation, Deal Deal on Square D. Up Front: Policial Automation, Deal Deal on Square D. Up Front: Schneider Seals the Deal on Square D. Up Front: Policiance Ramps Up R&D. Up Front: Policiance Ramps Up Cet The French Have Deal on Square D. Up Front: Schneider Seals the Deal on Square D. Up Front: Policiance Ramps Up Cet The French Have Spends Are Spends								Index	7	Raymond	Feb	20
Even, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Spends \$512 Million On Industrial Automation, Sept Up Front: Pharmaceuticals Spends \$512 Million On Industrial Automation, Sept Up Front: Reliance Ramps Up Rab. Control Business Directions: Spends \$512 Million On Industrial Automation, Sept Up Front: Reliance Ramps Up Rab. Control Business Directions: Spends \$512 Million On Industrial Automation, Sept Up Front: Reliance Ramps Up Rab. Control Business Directions: Spends \$512 Million On Industrial Automation, Sept Up Front: Reliance Ramps Up Rab. Control International: Control Spends Spen								July	-	Control International Consori	1.00	20
ANNUNCIATORS, see Alarms, also see Data Display Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Markets. Blickley, George. Control International: Markets. Blickley, George. Control International: Ment the "Frain" Comes, Bout, Raymond. Spends \$512 Million On Industrial Muntation. Seel and Superior Interface Key Segment. Up Front: Peliance Ramps Up Cot to Up Front: Scheider Seals the Deal on Square D. Up Front: Scheider Seals the Deal on Square D. Up Front: Scheider Seals the Deal on Square D. Up Front: Peliance Ramps Up Cot to Up Front: Paramaceuticals Spends \$512 Million On Industrial Muntation. Spends \$512 Million Control Spates The French Coalition Forces, Babb, Michael Editoria: Square D industrial PC, Babb, Michael Editoria: The Res	Henry	July	43		June 1	13						
Recession Comes, it Will be see Data Display ARTIFICIAL INTELLIGENCE Control Business Directions: Looking for New Markets, Blickley, George. Spends \$512 Million On Industrial Automation. Spends \$512 Millio					3 Cal rej	13			9			- 00
Fab Display Mild, Blickley, George Mild, Blickl	ANNUNCIATORS, see Alarn	ns, also	0								мау	10
ARTIFICIAL INTELLIGENCE Control Business Directions: Looking for New Markets, Blickley, George		,					Key Segment,	Oct2E	7			
ARTIFICIAL INTELLIGENCE Clear Vision of Fuzzy Logic, In- lelise, Nick	ooc Data Display				Feb	13	Up Front: Pharmaceuticals					
Clear Vision of Fuzzy Logic, Infeliae, Nick Feliae, Nick Spired System Applications in Advanced Control Systems, Kompass, Edward July Stat Computers Open the Way For Advanced Control International: Channel Tunnel: Everything is Under Control International: Channel Tunnel: Everything is Under Control International: Don't Raymond. July July July State Computers Open the Way For Advanced Controls, Babb, Michael Logs Prospering in the U.K. July Front: Reliance Ramps Up R&D. Up Front: Schneider Seals the Deal on Square D. Up Front: Siemens Agrees: Ti is Tibest Value". June Up Front: Schneider Seals the Deal on Square D. Up Front: Siemens Agrees: Ti is Tibest Value". Up Front: Schneider Seals the Deal on Square D. Up Front: Schneider Seals the	ADDIESOLAL INVESTIGACION						Spends \$512 Million On In-				Mar	24
Clear Vision of Fuzzy Logic, Infelise, Rick July 28 Control Business Directions: Spinoffs Good for Control. Blickley, George April 13 Spinoffs Good for Control. Babb, Michael Industrial PC, Babb, Michael Aug Batching Spinoffs Good for Control. Babb, Michael Industrial PC, Babb, Michael Aug Batching Spinoffs Good for Control. Babb, Michael Industrial PC, Babb, Michael Aug Batching Spinoffs Good for Control International: Suppril International Spinoffs Good for Control Intern							dustrial Automation,	Sept	9	Editorial: American DCS Tech-		
Tellise, Nick	Clear Vision of Fuzzy Logic, In-				Jan	13				nology Prospering in the U.K.,		
Expert System Applications in Advanced Control Systems, Kompass, Edward July 51 Fast Computers Open the Way For Advanced Control, Boult, Raymond. Babb, Michael Up Front: Schneider Seals the Deal on Square D. Babb, Michael Up Front: Semens Agrees: Ti is Teach Mare Personality Honored, Boult, Raymond. Saltics (APPLICATION SPECIFIC Integrated Circuits ASICs (APPLICATION SPECIFIC Integrated Circuits AUTOMATED QUALITY CONTROL, see Quality Control Make Difference, Boult, R. Spinoffs Good for Control, April 13 Advanced Control Systems, Control International: Control Babb, Michael Up Front: Schneider Seals the Deal on Square D. June 9 Bickley, George. April 13 April	felise, Nick	July	28						9	Babb, Michael	July	27
Advanced Control Systems, Kompass, Edward July 51 Fast Computers Open the Way For Advanced Control International: Channel Tunnel: Everything is Under Control International: Control International: Control International: Don't Miss the Bus to CliM, Boult, Raymond. ASICs (APPLICATION SPECIFIC INTEGRATED CIRCUITS), see Integrated Circuits AUTOMATED QUALITY CONTROL, see Quality Control AUTOMATED QUALITY CONTROL, see Quality Control AUTOMATIC FACTORY, see Bickley, George. April 13 Deal on Square D. June Up Front: Siemens Agrees: Ti is TBest Value". June 20 Up Front: Siemens Agrees: Ti is TBest Value". June 20 Up Front: Siemens Agrees: Ti is TBest Value". June 20 Up Front: The U.S. Has an Image Problem. Sape Problem. Deal on Square D. June 9 Bickley, George. April 13 Deal on Square D. June 9 Batch (Ross) Fast Value". June 20 BATCH CONTROL, see Weighing and Batching Aug 16 Control International: Making Control International: Standardization and Batching Con	Expert System Applications in									Editorial: Square D Encounters		
Kompass, Edward July 51 Control International: Channel Tunnel: Everything is Under Control, Boult, Raymond Juny 57 For Advanced Controls, Babb, Michael Juny 45 Raymond July 37 ASICs (APPLICATION SPECIFIC International: Suprol. International: Suprol. See Quality Control See Quality Control AUTOMATED QUALITY CONTROL, see Quality Control AUTOMATIC FACTORY, see Control International: Standardization size poople and Size Will Make Difference, Boult, R. Control International: Standardization by PC: The French Have Control International: Suprovision by PC: The French Have Control International: Control International: Standardization by PC: The French Have Control International: Control by Cont	Advanced Control Systems,			Blickley, George	April	13			0			
Fast Computers Open the Way For Advanced Controls. Babb, Michael. Jan 45 Control International: Control Raymond. ASICs (APPLICATION SPECIFIC INTEGRATED CIRCUIT®), see Integrated Circuits AUTOMATED QUALITY CONTROL, see Quality Control AUTOMATIC FACTORY, see Integrated Circuits Tunnel: Everything is Under Control Resymond. Jan 20 J		July	51	Control International: Channel					a		Mar	53
For Advanced Controls, Babb, Michael Sabb, Michael Control International: Control International: Control International: Making Ciffer and Control International		,	-						_			00
Babb, Michael. Jan 45 Control International: Control Raymond. Saltos (APPLICATION SPECIFIC INTEGRATED CIRCUITS), see Integrated Circuits AUTOMATED QUALITY CONTROL, see Quality Control Make Difference, Boult, R. Control International: Standardization poor sion poo					Jan :	20			9			97
Neural Network Software Assists Expert System, Verduin, July 37 ASICs (APPLICATION SP≝CIFIC International: Don't Miss the Bus to CIM, Boult, Raymond. AUTOMATED QUALITY CONTROL, see Quality Control International: Standardization Popular and Size Will Make Difference, Boult, R. AUTOMATIC FACTORY, see Personality Honored, Boult, Raymond. Aug 16 BATCH CONTROL, see Weighing and Batching Cant Despite Augustion Proposed Countrol Supplies Laduzinsky, Alian Jan 65 CELL CONTROL The Origin of the Cell Control Species, Laduzinsky, Alian Jan 65 Cant Be Tircky, Ledger-wood, Wair Trends in Control: Acquisitions Can Be Tircky, Ledger-wood, Supervised Proposed Propose		lan	45		-		Up Front: The U.S. Has an Im-					31
sists Expert System, Verduin, William		Jan	40				age Problem,	Oct	9			
William					Indicate	240	DATON CONTROL We					
ASICs (APPLICATION SPECIFIC INTEGRATED CIRCUITS), see Integrated Circuits AUTOMATED Quality Control Miss the Bus to CIM, Boult, Raymond. Aug 16 Control International: Making CIME Pay in Europe, Boult, Raymond. June 20 June 20 Cell Control The PLC Giants: Investing In The Future of Automation, Make Difference, Boult, R Control International: Standardization: People and Size Will Make Difference, Boult, R Control International: Standardization: People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Making Modicin's 984 Re-e-inerges As a VMEDus doi: Notice of People And Size Will Modicin's 984 Re-e-inerges As a VMEDus doi: Notice of People And Size Will Modicin's 984 Re-e-		feet.	0.7	Cartest later with the Control	July II	112		ighing				
ASICs (APPLICATION SPECIFIC INTEGRATED CIRCUITS), see Integrated Circuits AUTOMATED QUALITY CONTROL, see Quality Control AUTOMATIC FACTORY, see Raymond. Aug 16 Control International: Making CIME Pay in Europe, Boult, Raymond. June 20 AUTOMATIC FACTORY, see Raymond. Aug 16 Control International: Standardization: People and Size Will Make Difference, Boult, R. Feb 20 Control International: Supervision by PC: The French Have Species, Laduzinsky, Alan. Jan 65 Can Be Tricky, Ledgerwood.	wallam	July	3/				and Batching					
INTEGRATED CIRCUIT®), see Integrated Circuits AUTOMATED QUALITY CONTROL, see Quality Control AUTOMATIC FACTORY, see Control International: Making CIME Pay in Europe, Boult, Raymond				Miss the Bus to CIM, Boult,								
INTEGRATED CIRCUITS), see Integrated Circuits AUTOMATED QUALITY CONTROL, see Quality Control AUTOMATIC FACTORY, see Control International: Making CIME Pay in Europe, Boult, Raymond	ASICs (APPLICATION SPEC	CIFIC				16				Henry	July2E	. 5
Integrated Circuits CIME Pay in Europe, Boult, Raymond				Control international: Making						Modicon's 984 Re-emerges As		
AUTOMATED QUALITY CONTROL, see Quality Control AUTOMATED QUALITY CONTROL, see Quality Control AUTOMATIC FACTORY, see Raymond. June 20 Michael. June 20 CELL CONTROL The PLC Giants: Investing in The Future of Automation, Marke Difference, Boult, R. Feb 20 Control International: Supervision by Feb 20 Control International: Supervision by Feb 20 Control International: Supervision by Feb 20 The Origin of the Cell Control Species, Laduzinsky, Alan Jan 65 Can Be Tricky, Ledgerwood,				CIME Pay in Europe, Boult,			0 3					
AUTOMATED QUALITY CONTROL, see Quality Control Make Difference, Boult, R Control International: Standardization: People and Size Will Make Difference, Boult, R Feb 20 The Origin of the Cell Control Babb, Michael Trends in Control: Acquisitions Species, Laduzinsky, Alan Jan 65 Trends in Control: Acquisitions Can Be Tricky, Ledgerwood,	integrated Circuits					20					June	54
action: People and Size Will Make Difference, Boult, R Feb 20 Control International: Supervision by PC: The French Have CELL CONTROL The Future of Automation, Babb, Michael	******								_			
See Quality Control Make Difference, Boult, R Feb 20 The Origin of the Cell Control Species, Laduzinsky, Alan Jan 65 Trends in Control: Acquisitions Species, Laduzinsky, Alan Jan 65 Trends in Control: Acquisitions Unit Control system Opens Its Can Be Tricky, Ledgerwood,		NTROL	*9				CELL CONTROL			The Future of Automation		
AUTOMATIC FACTORY, see Control International: Supervi- sion by PC: The French Have Unit Control system Opens Its Can Be Tricky, Ledgerwood,	see Quality Control					20						. 67
AUTOMATIC FACTORY, see sion by PC: The French Have Unit Control system Opens Its Can Be Tricky, Ledgerwood,						20			es.			5/
of the friends that the state of the friends that the fri	AUTOMATIC FACTORY and								90			
MORE SOUTH A WORK SOUTH HOUSE REMOVED May 15 Architecture Babb Michael Eab 24 Duron 110										Can Be Tricky, Ledgerwood,		
Mal	manufacturing Control			a Word for It, Boult, Raymond	May	16	Architecture, Babb, Michael	Feb	34	Byron	Mar	r 158

CONTROL ENGINEERING

EDITORIAL INDEX

CONTROL ENGINEERING VOLUME 37, December 1990—VOLUME 38, October 2nd Edition, 1991

(2E) = 2nd Edition; (LS) = Literature Showcase; (BLPG) = Board Level Product Guide;

ACTUATORS APPLICATION SPECIFIC Silariers, Batch, Michael Sept 50 Down, One to Go, Bisckiey, George Down, One	A			В			Control International: The Fu-			COMPANIES		
Starters, Babb, Minhaul Sarters, Babb, Minhau			_			_	ture of Manufacturing Indus-	Cont 1	10	Allen-Bradley Hoists 1771 Flag;		
ACTUATORS Corrownestary: Getting Control Loops Bisk in the Felicial Control International Loops Loops Bisk in the Felicial Loops Loops Bisk in the Light of Div. Bisk Loops Loops Bisk in the Light of Div. Bisk Loops Loops Bi	AC DRIVES							Sept	18			
ACTUATORS Business Directions: Oxfood for Control Mand, Biskley, Logs Back an the Fall. Copes Back an the Fall. Copes Back an the Fall. Control International: ABB Notes Process Automation States, Control St							Editorial: American DCS Tech-				April	85
SETUATIONS Commentary (My Control) Commentar	Starters, Babb, Michael	Sept	50				nology Prospening in the U.K.,	fusion 6	27			
ACTUATORS Commentary delating Control Commentary (ething Control Commentary (ething Control Needs Smart Actuators). Sept 147 Interference of Sept					Sept 1	3		July 2	21		July2E	17
Commentary Centrel Control Loops Back in the Field, Loops Back in the Field, Compass, Edward Loops Back in the Field Control International ABB Control International International ABB Control International Internati	ACTUATORS											
Loops Back in the Field Commentary Why Control Section Control Sect								0	200	Brick by Brick, Babb, Michael	Mar	54
Konipass, Edward Commentary Wity Control Needs Smart Actuators, Screen and Stepper, Bibliothys of In Tank Gage. Blickley, There are the French Coalition Forces, Barry and Stepper, Bibliothys of In Tank Gage. Blickley, There are the French Coalition Forces, Barry and Stepper, Bibliothys of International Control Research State, Marks Lichage With Part State Commentary on Control Cortes Automation, Dickles Process Automation Cortes State Control Research State, Marks State Control Research State, Marks State Control Research				George	July 1	1		Oct 6	53	Control International: ABB		
Commentary: Why Control Needs Process Automation Makeds Process Automation Needs Commentary: Why Control Regiment Control Needs Process Automation Needs Process Automatical Needs Process Automati		Oct 2	161	Control International: ABB								
Needs Smart Actuators, George Control Business Directions: Special Special Control Business Directions: Special Control Business Dir		OCI 2	101	Hosts Process Automation						"Summit" in Sweden, Boult	Oct	22
Sept 147 Commentary on Control Composition Sequence 19 Sept 29 Sept 39 Sept				"Summit" in Sweden, Boult,				June 4	43	Control Business Directions:		
Lumitorque Entrers DCS Market. May 81 Sincidiale, Robert. May 81 Servo and Slepper. Both Used in Tank Gage, Blickley. April 35 Commentary on Cortrol: Composition of Control and PID Algorithms, Kompass, Edward. Commentary on Cortrol: Composition of Control: Commentary on Cortrol: Composition of Control: Commentary on Cortrol: The East of Measurement Techniques. Signal Conditioning Continues Dipplied and Globol Trands, La-dustrians, Blickley, George Cortrol: Signal Control: Commentary: Why Control:		Comt 4	47	Raymond	Oct 2	22				Control Business Still Grow-		
of New Ones, Lodgerwood, Byron. Goother Serve and Stepper. Both Used in Tank Gage. Blickley. April 81 Commentary on Control: More Commentary o		Sept 1	4/					Sept 4	49	ing, Blickley, George	May	13
Signa Delta AD. ANALOG-TO-DIGITAL CONTENTED Signa Edicition (Commentary on Control: U.S. Groups Betta AD. Commentary on Control: U.S. Groups Betta AD. ANALOG-TO-DIGITAL CONVENTERS Signa Delta AD. July 45 Commentary on Control: U.S. Groups Betta AD. July 57 Commentary on Control: U.S. Groups Betta AD. July 67 Commentary on Control: U.S. Groups Betta AD. July 68 Commentary on Control: U.S. Groups Betta AD. July 69 Commentary on Control: U.S. Groups Betta AD. July 69 Commentary on Control: U.S. Groups Betta AD. July 60 Commentary on Control: U.S. Groups Betta AD. July 60 Commentary on Control: U.S. Groups Betta AD. July 77 Commentary on Control: U.S. Groups Betta AD. July 78 Control Business Directions: Looking to Rev Markets, Logistrood. Control Business Directions: July 61 Commentary on Control: U.S. Groups Betta AD. July 79 Control Business Directions: Looking to Rev Markets, Logistrood. July 70 Commentary on Control: U.S. Groups Betta AD. July 70 Control Business Directions: Looking to Rev Markets, Logistrood. July 71 Control Business Directions: Looking to Rev Markets, Logistrood. July 70 Commentary on Control: U.S. Groups Betta AD. July 70 Control Business Directions: Looking to Rev Markets, Logistrood. July 71 Commentary on Control: U.S. Groups Betta AD. July 70 Control Business Directions: Looking to Rev Markets, Logistrood. July 71 Trends in Control: Control City Industry Shows Good Performance, Built Have the Markets Betta Control Fromers Signa Delta AD. July 70 Control Business Directions: Looking to Rev Markets, Logistrood. July 71 Trends in Control: Control City Industry Shows Good Performance, Built Have Control Fromers Signa Delta AD. July 70 Control Business Directions: Looking for New Markets, Logistrood. July 71 Trends in Control: Control City Industry Shows Good Performance, Built Have Control Fromers Signa Delta AD. July 70 Control Business Directions: Control Business Directions: Looking for New Markets, Logistrood. July 71 Trends in Control: Frome La							Editorial: Square D Encounters					
Commentary on Control Compositions (Commentary on Control Compositions) Smaller Steps, More Useful Output Place Siley Motors and Controls, Bartos, Prark. Oct. 146 O		May	81		Oct 26	92	the French Coalition Forces,					
poter Control and PID Algo- relations Usage. Nore Useful Output Pace Step Motors and Controls, Barros, Frank				Commentary on Control: Com-			Babb, Michael	Mar !	53			
mithms, Kompass, Edward Commercian of Changes in Industry on Control Commercian of Changes in Industry on Control Commercian Changes in Industry Control Standards and Regulations, Bickley, George Date of Standards and Regulations Date of Standa							Mesucora Highlights PLCs and				Aug	13
Commentary on Control: More Commentary on Control: More Commentary on Control: Serios, Frank. Commentary on Control: More Commentary on Control: More Commentary on Control: More Commentary on Control: More Standards and Regulations. Blickiey, George — Oct 1111 Commentary on Control: U.S. Genneratary on Control: The Serios Standards and Regulations. Blickiey, George — Oct 1111 Commentary on Control: U.S. Giving Data And Control: The Spiral Control on Commentary on Control: U.S. Giving Data And Control: Commentary on Control: U.S. Giving Data And Control: Spiral Control on Commentary on Control: U.S. Giving Data And Control: Spiral Spiral Control: Spiral Control: Spiral Spiral Control: Spiral April 135 (Spiral Control: Spiral April 136 (Spiral Control: Spiral Spiral Control: Spiral April 136 (Spiral Control: Spiral April 136 (Spiral Control: Spiral Spiral Control: Spiral Spiral Control: Spiral April 136 (Spiral Control: Spiral Spiral Control: Spiral April 136 (Spiral Control: Spiral Spiral Control: Spiral April 136 (Spiral Control: Spiral Spiral Control: Spiral Spiral Control: Spiral Spiral Control: Spiral Control: Spiral Spiral Spiral Control: Spiral Spiral Control: Spiral Spiral Control: Spiral Spiral Control: Spiral Spiral Spiral Control: Spiral S		April	81		June 11	13	Measurement Techniques.					
Comments on Changes in Indicators Changing to Centrol, Repairs of Control, Repairs of Centrol, Repairs of Repairs of Centrol, Repairs of Rep								Sept !	59			
Control, Barton, Frank. Weive and Actuards Changing of New Markets, Edgerwood. Byron. ANALOG-To-Digital Conditioning Continues Digital and Global Brends, Labor Processor Control Susiness Directions: Control Rusiness Direc											lune	13
Valvets and Actuators Changing to Need Standards and Regulations, Blickley, George. Oct 11 Oct 11 Oct 12 Oct 12 Oct 12 Oct 13 Oct 14 Oct 15 Oct 15 Oct 15 Oct 15 Oct 16 Oct 17 Oct 17 Oct 17 Oct 18 O	Controls, Bartos, Frank	Oct 1	46								Julie	10
Trends in Control: An Integrator's Opportunity, Legistry, George Control Cuthbacks Stabilize, Legistry, George Control George Control Cuthbacks Stabilize, Legistry, George Control Specific Control Specific Control Specific Control Specific Control Cuthbacks Stabilize, Legistry, George Control Cuthbacks Stabilize, Legistry, George Control Specific Control Specific Control Specific Control Specific Control Specific Control Cuthbacks Stabilized Control Specific Control Specific Control Control Specific Control Specific Control Specific Control Control International Standard Control Specific Control Control Internati	Valves and Actuators Changing				April 13	15		Mar 1	58			
ANALOG-TO-DIGITAL CONVENTERS Signal Conditioning Continues Digital and foliolar Brends, Lab Growth International Control Signal Conditioning Continues Digital and foliolar Brends, Lab Growth International Control Signal Conditioning Continues Digital and foliolar Brends, Lab Growth International Control Signal Conditioning Continues Digital and foliolar Brends, Lab Growth International Control Signal Conditioning Control Needs Signart Actuators, Signal Conditioning Control Needs Signart Actuators Needs S					mpin 10	30					inn	12
ANALOG-TO-DIGITAL CONVENTERS Signal Conditioning Continues Digital and Global Trends, La- duzinsky, Alan. July 48 Up Front: New Transmitter Uses Signal Date ARD. Up Front: Two New Chips for Control. Control Business Directions: European Control Business Directions: Control B	lations, Blickley, George	Oct 1	111								Jan	13
ANALOG-TC-DIGITAL CONVENTERS Signal Condisioning Continues Digital and Global Frends, La- duzinsky, Alan Upf Front: New Transmitter Uses Signal Delta A/D, Front New Transmitter Uses Signal Delta A/D, Front New Transmitter Uses Signal Delta A/D, Front New Chips for Control. Sept 9 Outroid Business Directions: Control Spending-What and Where, Bickley, George Control. Control Business Directions: Diriting into the New Eo- Bishal A/D, Sept 147 ANALYSIS INSTRUMEENTS Taking Dralurs path Analyzer' Magical Mystery Tour, Mornis, Hernry Alarm, and Monitoring ANALYSIS INSTRUMEENTS Taking Dralurs path Analyzer' Magical Mystery Tour, Mornis, Hernry Alarm Alarms Control Business Directions: Looking for New Markets, Looking for New Look Looking for New Markets, Looking f						-	wood Buren	Ech 1	ne			
CONTROL RESIDENCE CONTROL SIGNAL SIGNAL SIGNAL SIGNAL STATE OF SERVENCE CONTROL BUSINESS DIrections: Light and Global Trends, La- duzinsky, Alan. July 45 Up Front: New Transmitter Uses Signa Bottat A/D. July 77 Control Business Directions: European	ANALOG.TO DIGITAL				Mar 10	3/		F00 1	UO			
Signal Conditioning Continues Digital and Sighal Armound Stead Transfer Uses Signal Delta Armound Transmitter Uses Signal Control Susiness Directions: European Control Susiness Dir											April	13
Commentary: Why Control Digital and Global Tends. La- duzinsky, Allan												
duzinsky, Alan July 45 Needs Sinart Actuators, Kompass, Edward Sigma Delta ArD, July 70 Control Resinance Sigman Delta ArD, July 71 Control Business Directions: Control Resinance Standard Control Business Directions: Business Di	Signal Conditioning Continues				Feb 10	07		June 1	14	Tunnel: Everything is Under		
Up Front: New Transmitter Uses Sigms Deits A/D,	Digital and Global Trends, La-									Control, Boult, Raymond	Jan	20
Up Front: New Transmitter Uses Sigma Date A, PD.	duzinsky, Alan	July	48	Needs Smart Actuators,			Believe, Ledgerwood, Byron	July	90	Control International: Control		
Sigma Delta A(D. July 70 Control Business Directions: Control New Chips for Control, when Chips for Control, when Chips for Control, when Chips for Control Business Directions: If Recession Comes, it Will be Midd, Bioking, George. ANNUNCIATORS, see Alarms, also see Data Display ANTIFICIAL INTELLIGENCE Clear Vision of Fuzzy Logic. Intelligence Control Business Directions: Control Busines	Up Front: New Transmitter Uses				Sept 14	47	Trends in Control: Plenty of					
De Front: Two New Chips for Control Business Still Growing, Blickley, George ALARMS Applications: PLC Voice Advisory, Alarm, and Monitoring Juty2E 26 Tontrol Business Directions: Control Systems Directions: Drifting into the New Economics for the 1990s, Blickley, George ANALYSIS INSTRUMENTS Taking On-Line pH Analyzers' Magical Mystery Tour, Morris, Henry Juty 43 ANNUNCIATORS, see Alarms, also see Data Display ANAUNCIATORS, see Alarms, also see Data Display ANAUNCIATORS, see Alarms, also see Data Display ANAUNCIATORS, see Alarms, also see Otate Display		July	7								.hubr	Int2
ALARKS Applications: PLC Voice Advisory, Alarm, and Monitoring, July2E 26 AMPLIFIERS, see Power Supplies and Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics for the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into the New Economics of the 1990s, Blick- ley, George — Cott 3 Control Business Directions: Drifting into New Markets Control Business Directions: Driftin		,						Aug	98		owy	or real.
ALARMS Applications: PLC Voice Adviso- ry, Alarm, and Monitoring. July2E 26 AMPLIFIERS, see Power Supplies and Control Business Directions: Dirifing into the New Economics for the 1990s, Blick- ive, George. Survey of the 1990s Blick- ive, George.		Cont	0		Many 1	12						
ACONTRO! Spending-What and Moplications: PLC Voice Advisory, Alarm, and Monitoring, July 2E 26 MAPLIFIERS, see Power Supplies and Controllers AMPLIFIERS, see Power Supplies and Controllers ANALYSIS INSTRUMENTS Taking On-Line pH Analyzers' Shows Good Performance, Bickley, George — Control Business Directions: Pactory Controls Sales And Supervisors (Control Business Directions: Pactory Controls Sales And Supervisors) ANNUNCIATORS, see Alarms, elso see Data Display ANNUNCIATORS, see Alarms, elso See Data Display ARTIFICIAL INTELLIGENCE Clear Vision of Fuzzy Logic, Infelies, Nick — July 51 East Computers Open the Way For Advanced Control's, Seen Sould Far Control Business Directions: Looking for New Markets, Blackley, George. Control Business Directions: Handward (Control Spending-What and Warkets) Control Business Directions: Looking for New Markets, Blickley, George. Control International: Market of Control Market (Control International: Spending-What (Control International: Control Note (Control International: Market (Control International: Control Note (Control International: Market (Control International: Control Note (Control,	Sehr	3		mary	13						
AMPLIFIERS, see Power Supplies and Controllers AMPLIFIERS, see Power Supplies and Controllers AMPLIFIERS, see Power Supplies and Controllers AMPLIFIERS, see Power Supplies and Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics for the 1990s, Blickler, George Control International Spring into the New Economics of the Ne								April 4	26		Aug	16
Control Business Directions: Drifting into the New Econonics for the 1990s, Blickley, George George Gontrol International: Supervision Personal Procession	ALARMS							April 1	30	Control International: Making		
AMPLIFIERS, see Power Supplies and Controllers AMPLIFIERS, see Power Supplies and Controllers AMPLIFIERS, see Power Supplies and Control Insuring Silections: Leave Spender Supplies and Control Business Directions: European Controls Industry Shows Good Performance, Blickley, George Silections: Factory Control Insuring Silections: Factory Control Sales About Even, Blickley, George Spender, Spende	Applications: PLC Voice Adviso-				Oct	13	Trends: Systems Integrators In-			CIME Pay in Europe, Boult,		
AMPLIFIERS, see Power Supplies and Controllers ANALYSIS INSTRUMENTS Taking On-Line pH Analyzers' Magical Mystery Tour, Morris, Henry Maring Analyzers' Magical Mystery Tour, Morris, Henry Maring Analyzers' Magical Mystery Tour, Morris Maring Analyzers' Magical Mystery Tour, Morris Maring On-Line pH Analyzers' Magical Mystery Tour, Morris Magical Mystery Tour, Mo	ry, Alarm, and Monitoring,	July2E	26								June	20
Itely George Ley George Control Business Directions: European Control's Industry Control Business Directions: European Control's Industry Shows Good Performance, Blickley, George Blickley, George Blickley, George Control Business Directions: If Recession Comes, it Will be Mid. Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Markets, Blickley, George Control Business Directions: Looking for New Marke									48	Control International: Quality in		
ANALYSIS INSTRUMENTS Taking On-Line pH Analyzers' Magical Mystery Tour, Morris, Henry July 43 ANNUNCIATORS, see Alarms, also see Data Display ANNUNCIATORS, see Alarms, also see Data Display ANNUNCIATORS, see Alarms, also see Data Display ANNUNCIATORS, see Alarms, also see Data Ordination of Selections: Looking for New Markets, Blickley, George George George Geart Will be Mid, Blickley, George Blickley, George George Geart Will be Mid, Blickley, George George Geart Will be Mid, Blickley, George	AMDI IEIEDE ana Dawer Cu	anline								Manufacturing Means Reli-		
ANALYSIS INSTRUMENTS Shows Good Performance, Aug 13 Control Business Directions: Eactory Controls Sales About Even, Blickley, George. Control Business Directions: Factory Control Sales About Even, Blickley, George. Control Business Directions: Factory Control Sales About Even, Blickley, George. Control Business Directions: Factory Control Sales About Even, Blickley, George. Control Business Directions: Factory Control Sales About Even, Blickley, George. Control Business Directions: Factory Control Sales About Even, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Lookin		phuas		ley, George	Mar 1	13	Ways,	Oct	9	able Instruments, Boult.		
European Controls Industry Shows Good Performance, Blickley, George. ANUNCIATORS, see Alarms, elso see Date Display ANUNCIATORS, see Alarms, elso see Date Display ANTIFICIAL INTELLIGENCE Clear Vision of Fuzzy Logic, In- lefise, Nich. July 51 Fast Computers Open the Way For Advanced Control Systems, Kompass, Edward July 57 Fast Computers Open the Way For Advanced Control Spottiners Blickley, George. Spinoffis Good for Control Business Directions: Looking for New Markets, Blickley, George. Spinoffis Good for Control Business Directions: Spinoffis Good for Control Business Directions: Spinoffis Good for Control Blickley, George. Spinoffis Good for Control Business Directions: Spinoffis Good for Control Business Directions: Spinoffis Good for Control Business Directions: Spinoffis Good for Control Blickley, George. Spinoffis Good for Control Business Directions: Spinoffis Good	and Controllers			Control Business Directions:			Up Front: Eaton Plans to Pur-			Raymond	April	40
ANALYSIS INSTRUMENTS Taking On-Line pH Analyzers' Magical Mystery Tour, Morris, Henry				European Controls Industry			chase Nematron,	Aug	9			
Taking On-Line pH Analyzers' Magical Mystery Tour, Morris, Henry. July 43 ANNUNCIATORS, see Alarms, also see Data Display ANNUNCIATORS, see Alarms, also see Data Display ARTIFICIAL INTELLIGENCE Clear Vision of Fuzzy Logic, Infelies, Nick Expert System Applications in Advanced Control Systems, Kompass, Edward Avanced Control Systems, Kompass, Edward For Advanced Control Systems, Kompass, Edward For Advanced Controls, Babb, Michael July 51 Control Business Directions: Blickley, George Control Business Directions: Spinoffs Good for Control, Boult, Raymond Blickley, George Control Business Directions: Spinoffs Good for Control, Boult, Raymond Control International: Channel Tunnet: Everything is Under Tunnet: Everythin	ANALYSIS INSTRUMENTS			Shows Good Performance,					9			
Magical Mystery Tour, Morris, Henry				Blickley, George	Aug '	13			-			
ANNUNCIATORS, see Alarms, also see Data Display ANTIFICIAL INTELLIGENCE Clear Vision of Fuzzy Logic, Infelies, Nick Control Business Directions: Looking for New Markets, Blickley, George. Looking for New Markets, Blickley, George. Subject of Systems, Acompass Edward Control Systems, Kompass, Edward Control International: Control International: Control International: Don't Miss the Bus to CliM Boult, Raymond. ASICs (APPLICATION SPECIFIC INTEGRATED CIRCUIT®), see Integrated Circuits AUTOMATED QUALITY CONTROL, see Quality Control AUTOMATED GUALITY CONTROL, see Quality Control AUTOMATIC FACTORY, see Control International: Supervision of Vision of Vehicles Largeest Spender, Aug 9 Up Front: Motor Vehicles Largeest Spender, Aug 9 Up Front: Operator Interface Key Segment, Oct2E 7 Up Front: Paramaceuticals Spends \$512 Million On Industrial Automation, Sept 1 Up Front: Reliance Ramps Up R&D. Up Front: Schneider Seals the Deal on Square D. Up Front: Schneider Seals the Deal on Square D. Up Front: Schneider Seals the Deal on Square D. Up Front: Schneider Seals the Deal on Square D. Up Front: The U.S. Has an Image Problem, Deal on Square D. Up Front: The U.S. Has an Image Problem, Deal on Square D. Up Front: The U.S. Has an Image Problem, Deal on Square D. Up Front: The U.S. Has an Image Problem, Deal on Square D. Up Front: The U.S. Has an Image Problem, Deal on Square D. Up Front: Policial Automation, Deal Deal on Square D. Up Front: Policial Automation, Deal Deal on Square D. Up Front: Policial Automation, Deal Deal on Square D. Up Front: Schneider Seals the Deal on Square D. Up Front: Policiance Ramps Up R&D. Up Front: Policiance Ramps Up Cet The French Have Deal on Square D. Up Front: Schneider Seals the Deal on Square D. Up Front: Policiance Ramps Up Cet The French Have Spends Are Spends								Index	7	Raymond	Feb	20
Even, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: Looking for New Markets, Blickley, George. Spends \$512 Million On Industrial Automation, Sept Up Front: Pharmaceuticals Spends \$512 Million On Industrial Automation, Sept Up Front: Reliance Ramps Up Rab. Control Business Directions: Spends \$512 Million On Industrial Automation, Sept Up Front: Reliance Ramps Up Rab. Control Business Directions: Spends \$512 Million On Industrial Automation, Sept Up Front: Reliance Ramps Up Rab. Control Business Directions: Spends \$512 Million On Industrial Automation, Sept Up Front: Reliance Ramps Up Rab. Control International: Control Spends Spen								July	-	Control International Consori	1.00	20
ANNUNCIATORS, see Alarms, also see Data Display Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Mild, Blickley, George. Control Business Directions: If Recession Comes, it Will be Markets. Blickley, George. Control International: Markets. Blickley, George. Control International: Ment the "Frain" Comes, Bout, Raymond. Spends \$512 Million On Industrial Muntation. Seel and Superior Interface Key Segment. Up Front: Peliance Ramps Up Cot to Up Front: Scheider Seals the Deal on Square D. Up Front: Scheider Seals the Deal on Square D. Up Front: Scheider Seals the Deal on Square D. Up Front: Peliance Ramps Up Cot to Up Front: Paramaceuticals Spends \$512 Million On Industrial Muntation. Spends \$512 Million Control Spates The French Coalition Forces, Babb, Michael Editoria: Square D industrial PC, Babb, Michael Editoria: The Res	Henry	July	43		June 1	13						
Recession Comes, it Will be see Data Display ARTIFICIAL INTELLIGENCE Control Business Directions: Looking for New Markets, Blickley, George. Spends \$512 Million On Industrial Automation. Spends \$512 Millio					3 Cal rej	13			9			- 00
Fab Display Mild, Blickley, George Mild, Blickl	ANNUNCIATORS, see Alarn	ns. also	0								мау	10
ARTIFICIAL INTELLIGENCE Control Business Directions: Looking for New Markets, Blickley, George		,					Key Segment,	Oct2E	7			
ARTIFICIAL INTELLIGENCE Clear Vision of Fuzzy Logic, In- lelise, Nick	ooc Data Display				Feb	13	Up Front: Pharmaceuticals					
Clear Vision of Fuzzy Logic, Infeliae, Nick Feliae, Nick Spired System Applications in Advanced Control Systems, Kompass, Edward July Stat Computers Open the Way For Advanced Control International: Channel Tunnel: Everything is Under Control International: Channel Tunnel: Everything is Under Control International: Don't Raymond. July July July State Computers Open the Way For Advanced Controls, Babb, Michael Logs Prospering in the U.K. July Front: Reliance Ramps Up R&D. Up Front: Schneider Seals the Deal on Square D. Up Front: Siemens Agrees: Ti is Tibest Value". June Up Front: Schneider Seals the Deal on Square D. Up Front: Siemens Agrees: Ti is Tibest Value". Up Front: Schneider Seals the Deal on Square D. Up Front: Schneider Seals the	ADDIESOLAL INVESTIGACION						Spends \$512 Million On In-				Mar	24
Clear Vision of Fuzzy Logic, Infelise, Rick July 28 Control Business Directions: Spinoffs Good for Control. Blickley, George April 13 Spinoffs Good for Control. Babb, Michael Industrial PC, Babb, Michael Aug Batching Spinoffs Good for Control. Babb, Michael Industrial PC, Babb, Michael Aug Batching Spinoffs Good for Control. Babb, Michael Industrial PC, Babb, Michael Aug Batching Spinoffs Good for Control International: Suppril International Spinoffs Good for Control Intern							dustrial Automation,	Sept	9	Editorial: American DCS Tech-		
Tellise, Nick	Clear Vision of Fuzzy Logic, In-				Jan	13				nology Prospering in the U.K.,		
Expert System Applications in Advanced Control Systems, Kompass, Edward July 51 Fast Computers Open the Way For Advanced Control, Boult, Raymond. Babb, Michael Up Front: Schneider Seals the Deal on Square D. Babb, Michael Up Front: Semens Agrees: Ti is Teach Mare Personality Honored, Boult, Raymond. Saltics (APPLICATION SPECIFIC Integrated Circuits ASICs (APPLICATION SPECIFIC Integrated Circuits AUTOMATED QUALITY CONTROL, see Quality Control Make Difference, Boult, R. Spinoffs Good for Control, April 13 Advanced Control Systems, Control International: Control Babb, Michael Up Front: Schneider Seals the Deal on Square D. June 9 Bickley, George. April 13 April	felise, Nick	July	28						9	Babb, Michael	July	27
Advanced Control Systems, Kompass, Edward July 51 Fast Computers Open the Way For Advanced Control International: Channel Tunnel: Everything is Under Control International: Control International: Control International: Don't Miss the Bus to CliM, Boult, Raymond. ASICs (APPLICATION SPECIFIC INTEGRATED CIRCUITS), see Integrated Circuits AUTOMATED QUALITY CONTROL, see Quality Control AUTOMATED QUALITY CONTROL, see Quality Control AUTOMATIC FACTORY, see Bickley, George. April 13 Deal on Square D. June Up Front: Siemens Agrees: Ti is TBest Value". June 20 Up Front: Siemens Agrees: Ti is TBest Value". June 20 Up Front: Siemens Agrees: Ti is TBest Value". June 20 Up Front: The U.S. Has an Image Problem. Sape Problem. Deal on Square D. June 9 Bickley, George. April 13 Deal on Square D. June 9 Batch (Ross) Fast Value". June 20 BATCH CONTROL, see Weighing and Batching Aug 16 Control International: Making Control International: Standardization and Batching Con	Expert System Applications in									Editorial: Square D Encounters		
Kompass, Edward July 51 Control International: Channel Tunnel: Everything is Under Control, Boult, Raymond Juny 57 For Advanced Controls, Babb, Michael Juny 45 Raymond July 37 ASICs (APPLICATION SPECIFIC International: Suprol. International: Suprol. See Quality Control See Quality Control AUTOMATED QUALITY CONTROL, see Quality Control AUTOMATIC FACTORY, see Control International: Standardization size poople and Size Will Make Difference, Boult, R. Control International: Standardization by PC: The French Have Control International: Suprovision by PC: The French Have Control International: Control International: Standardization by PC: The French Have Control International: Control by Cont	Advanced Control Systems,			Blickley, George	April	13			0			
Fast Computers Open the Way For Advanced Controls, Babb, Michael. Jan 45 Control International: Control Raymond. ASICs (APPLICATION SPECIFIC INTEGRATED CIRCUIT®), see Integrated Circuits AUTOMATED QUALITY CONTROL, see Quality Control AUTOMATED Factors AUTOMATED Guality Control AUTOMAT		July	51	Control International: Channel					a		Mar	53
For Advanced Controls, Babb, Michael Sabb, Michael Control International: Control International: Control International: Making Ciffer and Control International		,	-						_			00
Babb, Michael. Jan 45 Control International: Control Raymond. Saltos (APPLICATION SPECIFIC INTEGRATED CIRCUITS), see Integrated Circuits AUTOMATED QUALITY CONTROL, see Quality Control Make Difference, Boult, R. Control International: Standardization poor sion poo					Jan :	20			9			97
Neural Network Software Assists Expert System, Verduin, July 37 ASICs (APPLICATION SP≝CIFIC International: Don't Miss the Bus to CIM, Boult, Raymond. AUTOMATED QUALITY CONTROL, see Quality Control International: Standardization Popular and Size Will Make Difference, Boult, R. AUTOMATIC FACTORY, see Personality Honored, Boult, Raymond. Aug 16 BATCH CONTROL, see Weighing and Batching Cant Despite Augustion Proposed Countrol Supplies Laduzinsky, Alian Jan 65 CELL CONTROL The Origin of the Cell Control Species, Laduzinsky, Alian Jan 65 Cant Be Tircky, Ledger-wood, Wair Trends in Control: Acquisitions Can Be Tircky, Ledger-wood, Supervised Proposed Propose		lan	45		-		Up Front: The U.S. Has an Im-					31
sists Expert System, Verduin, William		Jan	40				age Problem,	Oct	9			
William					Indicate	240	BATCH CONTROL We					
ASICs (APPLICATION SPECIFIC INTEGRATED CIRCUITS), see Integrated Circuits AUTOMATED Quality Control Miss the Bus to CIM, Boult, Raymond. Aug 16 Control International: Making CIME Pay in Europe, Boult, Raymond. June 20 June 20 Cell Control The PLC Giants: Investing In The Future of Automation, Make Difference, Boult, R Control International: Standardization: People and Size Will Make Difference, Boult, R Control International: Standardization: People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Supervision of People and Size Will Make Difference, Boult, R Control International: Making Modicin's 984 Re-e-inerges As a VMEDus doi: Notice of People And Size Will Modicin's 984 Re-e-inerges As a VMEDus doi: Notice of People And Size Will Modicin's 984 Re-e-		forth.	0.7	Cartest later with the Control	July II	112		ighing				
ASICs (APPLICATION SPECIFIC INTEGRATED CIRCUITS), see Integrated Circuits AUTOMATED QUALITY CONTROL, see Quality Control AUTOMATIC FACTORY, see Raymond. Aug 16 Control International: Making CIME Pay in Europe, Boult, Raymond. June 20 AUTOMATIC FACTORY, see Raymond. Aug 16 Control International: Standardization: People and Size Will Make Difference, Boult, R. Feb 20 Control International: Supervision by PC: The French Have Species, Laduzinsky, Alan. Jan 65 Can Be Tricky, Ledgerwood.	wallam	July	3/				and Batching					
INTEGRATED CIRCUIT®), see Integrated Circuits AUTOMATED QUALITY CONTROL, see Quality Control AUTOMATIC FACTORY, see Control International: Making CIME Pay in Europe, Boult, Raymond				Miss the Bus to CIM, Boult,								
INTEGRATED CIRCUITS), see Integrated Circuits AUTOMATED QUALITY CONTROL, see Quality Control AUTOMATIC FACTORY, see Control International: Making CIME Pay in Europe, Boult, Raymond	ASICs (APPLICATION SPEC	CIFIC				16				Henry	July2E	. 5
Integrated Circuits CIME Pay in Europe, Boult, Raymond				Control international: Making						Modicon's 984 Re-emerges As		
AUTOMATED QUALITY CONTROL, see Quality Control AUTOMATED QUALITY CONTROL, see Quality Control AUTOMATIC FACTORY, see Raymond. June 20 Michael. June 20 CELL CONTROL The PLC Giants: Investing in The Future of Automation, Marke Difference, Boult, R. Feb 20 Control International: Supervision by Feb 20 Control International: Supervision by Feb 20 Control International: Supervision by Feb 20 The Origin of the Cell Control Species, Laduzinsky, Alan Jan 65 Can Be Tricky, Ledgerwood,				CIME Pay in Europe, Boult,			0 3					
AUTOMATED QUALITY CONTROL, see Quality Control Make Difference, Boult, R Control International: Standardization: People and Size Will Make Difference, Boult, R Feb 20 The Origin of the Cell Control Babb, Michael Trends in Control: Acquisitions Species, Laduzinsky, Alan Jan 65 Trends in Control: Acquisitions Can Be Tricky, Ledgerwood,	integrated Circuits					20					June	54
action: People and Size Will Make Difference, Boult, R Feb 20 Control International: Supervision by PC: The French Have CELL CONTROL The Future of Automation, Babb, Michael	******								_			
See Quality Control Make Difference, Boult, R Feb 20 The Origin of the Cell Control Species, Laduzinsky, Alan Jan 65 Trends in Control: Acquisitions Species, Laduzinsky, Alan Jan 65 Trends in Control: Acquisitions Unit Control system Opens Its Can Be Tricky, Ledgerwood,		NTROL	*9				CELL CONTROL			The Future of Automation		
AUTOMATIC FACTORY, see Control International: Supervi- sion by PC: The French Have Unit Control system Opens Its Can Be Tricky, Ledgerwood,	see Quality Control					20						. 67
AUTOMATIC FACTORY, see sion by PC: The French Have Unit Control system Opens Its Can Be Tricky, Ledgerwood,						20			es.			5/
of the friends that the state of the friends that the fri	AUTOMATIC FACTORY and								90			
MORE SOUTH A WORK SOUTH HOUSE REMOVED May 15 Architecture Babb Michael Eab 24 Duron 110										Can Be Tricky, Ledgerwood,		
Mal	manufacturing Control			a Word for It, Boult, Raymond	May	16	Architecture, Babb, Michael	Feb	34	Byron	Mar	r 158

frends in Control: It's Hard to	computers		Improving Control Loop Per-	Color TFT LCDs Find a Place in	
Believe, Ledgerwood, Byron July	90 Applications: Compact Work-		formanceWithout The Math, St. Clair, David	Operator Interfaces, Stoffel, Jane Oct2E	47
Frends in Control: Patent Squabbles Continue, Ledger-	station Improves Co-extru-		IPC Conference and Exposition	Customer Demands Lead to	4/
wood, Byron Jan	118 sion Control,July2E	85	Celebrates 20th Anniversary,	New OI Developments, Fran-	
frends in Control: The Last of	Changing User Needs Keep Workstation Market Dynamic,		Franson, Deborah Mar 78	son, Deborah Oct2E	49
the Milwaukee Three?, Led- gerwood, Byron	Marrie Manny Octor	21	ISA/91 Conference and New	Graphic User Interface Impacts Control Architecture Develop-	
gerwood, Byron	Fast Computers Open the Way		Product Introduction Guide , Flynn, Raymond	ment, Bukow, Hans Mar@E	63
Ways Oct	For Advanced Controls,		Mesucora Highlights PLCs and	Latest Trends in Operator	-
Up Front: ABB Kent Taylor	Bladd, Michael Jan	45	Measurement Techniques,	Workstations, Chatha, Andy . Oct2E	17
Moving to Burbs, Mar	9 Latest Trends in Operator Workstations, Chatha, Andy . Oct2E	17	Boult, Raymond Sept 59	PC Graphics: Simple and Spe-	
Up Front: Bailey controls Cele-	9		NMW Draws Large Crowds, Mooney, John AugLS 6	cific, Or Complex and Flexi- ble, Cox, John	26
brates 75 Years, Feb Up Front: E + H: "Changing	COMPUTER SYSTEMS		Trends in Control: From Gunk	TFT Technology in Human ma-	
Generations', Jan	9 Applications: Compact Work-		to Pieces, Ledgerwood,	chine Interface, Fromm-	
Up Front: Eaton Plans to Pur-	station Improves Co-extru-		Byron May 162	Ayass, Reinhard Oct2E	37
chase Nematron, Aug	9 sion Control, July2E	85	Trends in Control: Patent Squabbles Continue, Ledger-	Up Front: Operator Interface Key Segment, Oct2E	. 7
Up Front: Getting Together:	Changing User Needs Keep 9 Workstation Market Dynamic,		wood, Byron Jan 118	What You Get Is What You See,	. ,
April, Telemecanique, May Up Front: Motor Vehicles Larg-	Morris, Henry Oct28	21	Up Front: 50 Years in Control	Laduzinsky, Alan Oct2E	59
est Spender, Aug	9 Latest Trends in Operator		Design, Sept 9	Windows 3.0 Leads Next Wave	
Up Front: Reliance Ramps Up	Workstations, Chatha, Andy . Dct2E	17	Up Front: John Ziegler, Photog-	of OI Software Innovation,	
R&D, Oc	9		rapher, Jan 9	Morin, Dennis Oct28	: 63
Up Front: Rosemount's New	CONTACTORS, see Relays			DATA MICHIWAYS and I and Ares	
Clean Room, Ma: Up Front: Schneider Seals the	9		CONTROL SIGNAL TRANSMISSION,	DATA HIGHWAYS, see Local Area Networks	
Deal on Square D, June	9 CONTINUOUS PROCESSES, see		see Data Transmission		
Up Front: Siemens Agrees: TI is	Process Control			DATA TRANSMISSION	
"Best Value", June	9		CONTROLLERS, see Process	Bringing Communications to Al-	
	CONTROL ARCHITECTURES		Controllers, also Power Supplies	ready Intelligent Devices,	
COMPUTER CONTROL	An Open Architecture, VMEbus		and Controllers, also	Morris, Henry FebLS	5 6
Applications: Industrial Comput-		t 161	Programmable Controllers	Commentary on Control: 1991: A Pivotal Year for Changes in	
er Controls CNC Precision	Application Enablers And the Evolution of Control Soft-				n 117
Gear Grinder, July21	123 ware, Smith, Alison Mar28	F 41	ART BIRDI AVA B-4- Bir-lave	Data Switch Provides a Low-	
Changing User Needs Keep	Control Architectures of the		CRT DISPLAYS, see Data Displays Applications: Standardization	Cost LAN Alternative, Babb,	
Workstation Market Dynamic, Morris, Henry Oct28	90s: Style, Structure, and Us-		Through CIM,July2E 101		y 89
Commentary on Control: 1991:	age, Lauuzinsky, Maii marzi	E 25		Digital Integration From the Field To the Control Room,	
A Pivotal Year for Changes in	Database Integration Boosts Plantwide Quality Control,		D D		b 39
	Bucher, Robert Mar2l	E 75		Issues in Managing Factory	
Commentary and Control: Com-	FieldbusThe Bottom-up Ap-		DATA ACQUISITION	Floor Data and Control, Con-	
puter Control and PID Algo- rithms, Kompass, Edward Jun	113 proach to an Open DCS,		Data Aquisition and Control Us-	rad, Charles	En
Control Devices and Systems:	rimney, ion marz:	E 52	ing "Blind Nodes", Agrusa,	Limitorque Enters DCS Market, Stockdale, Robert Ma	y 81
Load Cells To Circle The	Graphic User Interface Impacts Control Architecture Develop-		Russell Feb2E 66	Nothing Works Until It's Hooked	, -
	40 ment, Bukow, Hans Mar21	E 63	Data Switch Provides a Low-	Up By Cable and Wire, Mor-	
Fast Computers Open the Way	Issues in Managing Factory		Cost LAN Alternative, Babb, Michael May 89		Br 80
For Advanced Controls, Babb, Michael	45 Floor Data and Control, Con-		Database Integration Boosts	Signal Conditioning Continues Digital and Global Trends, La-	
Integrated Supervisory, Real-	rau, Granes marz	£ /1	Plantwide Quality Control,		ly 48
Time Control for Batch Appli-	Looking at Manufacturing Mes- sage Specifications, Mack-		Bucher, Robert Mar2E 75	Smart Transmitter Users Speak	,
	81 iewicz, Ralph Mar2	E 49	Issues in Managing Factory Floor Data and Control, Con-	Out for Global Standardiza-	
Object Oriented Process Appli- cations Come to the PC, Man-	One Way to Integrate Multiven-		rad, Charles Mar2E 71		pt 55
off, Michael Feb2	dor PLCs, Laduzinsky, Alan Mar2	E 57	Recorders and Indicators Exert	Up Front: Apple, Motorola Go On the Air, Mi	ar f
Real-Time Unix Targets Control	Alam Ma	y 63	a Cohesive Force in On-line	Up Front: Ziatech Takes a LON	
Applications, Wynia, Todd Mar2	45 Real-Time Unix Targets Control	ay oo	Quality, Bailey, Samuel Jan 57		ct 1
Talking About The Next Gener-	Applications, Wynia, Todd Mar2	E 45	Up Front: Memory Chip Stores Analog Data, Feb 9	Using I/O with Minimal Hard-	
ation Controller, Laduzinsky, Alan Mar2	79 State Logic: A Paradigm for In-		700	ware, Harte, George Mar2	E 50
Trends in Control: Control Cut-	tegrated Control in the 90s,	F 20			
backs Stabilize, Ledgerwood,	Brookings, Kenneth	E 30	DATA BUSES	DC DRIVES	
	2114 zinsky, Alan	E 31	An Open Architecture, VMEbus PLC Laduzinsky Alan Oct 161	DC Drives Still Have Miles to Go Before They Sleep, Bartos,	
VAX Control Software Offers	Talking About The Next Gener-		PLC, Laduzinsky, Alan Oct 161 Backplane for Open Control Ar-		ug 4
Off-the-Shelf Convenience, Stoffel, Jane Jur	ation Controller, Laduzinsky,		chitectures, Laduzinsky, A. AugBLPG 127		
	Alan Marz	E 79	Control International: Don't	DISTRIBUTED CONTROL	
	Where's Mine?, Laduzinsky, AlanMar2	E 27	Miss the Bus to CIM, Boult,	Commentary: Why Control	
COMPUTER PERIPHERAL DEVI	X Windows Comes To Real-	21	Raymond Aug 16		mt 2.4
Applications: Compact Work-	Time Operating Systems,		Editorial: Boards and Controls, Barry, ThomasAugBLPG	Data Aquisition and Control Us-	pt 14
station improves Co-extru- sion Control, Julya	Glenn Lee Mar2	E 67	Mezzanine Buses Jazz Up	ing "Blind Nodes", Agrusa,	
Changing User Needs Keep			VME, Seibert, Iris Aug 55	Russell Febû	2E 8
Workstation Market Dynamic,	CONTROL ENGINEERS,		Modicon's 984 Re-emerges As	DCS Melds Analog, Digital I/O,	
Morris, Henry Octa		ENT	a VMEbus Controller, Babb, Michael June 54		het 9
Data Switch Provides a Low- Cost LAN Alternative, Babb.	10th Control Expo Showcases		Multibus Bridges PC Appeal	Digital Integration From the Field To the Control Room,	
	Global Automation, Flynn, y 89 Raymond M	ay 47	With High-Tech Alternatives,		eb 3
Latest Trends in Operator	Commentary on Control: Con-	-,	Seibert, Iris May 83	FieldbusThe Bottom-up Ap-	
Workstations, Chatha, Andy . Oct.	E 17 trol Conference Tracking the		Multiple Systems Bus, Ladu-	proach to an Open DCS,	OE #
Up Front: Put That in Writing, Ap		ug 97	zinsky, AlanAugBLPG 73 VXIbus for Automated Testing,	Forum: Industrial Control With	est 3
	Commentary on Control: More Comments on Changes in In-		Seibert, Iris Aug 56		
COMPLITED COSTWARE	dustrial Control, Kompass,			Brown, Larry	Oct 25
COMPUTER SOFTWARE, see		oril 135		Limitorque Enters DCS Market,	_
Software, Control	Editorial: Products and sys-		DATA DISPLAY		lay 8
	tems, The Old Questions,	an 43	Applications: PLC Voice Adviso-	PC Graphics: Simple and Spe- cific, Or Complex and Flexi-	
	Babb, Michael	mii 43	ry, Alarm, and Monitoring, July2E 26 Changing User Needs Keep	ble, Cox, John Febi	2E 2
COMPUTER-INTEGRATED					
MANUFACTURING, see	Advanced Control Systems,		Workstation Market Dynamic, Morris, Henry Oct2E 2'	Single-Point I/O Boosts Con- troller Family, Babb, Michael Ap	pril 4

CONTROL ENGINEERING EDITORIAL INDEX

LUIIOIVA	- 11 4	DLA					Mar2E	63
Smart Transmitter Users Speak		Control International: Control		_	CONTROL	Latest Trends in Operator Workstations, Chatha, Andy . (PC Graphics: Simple and Spe-	Oct2E	17
Out for Global Standardiza- tion, Stockdale, Robert	Sept 55	Personality Honored, Boult, Raymond	July In	12	ENCLOSURES Control Devices and Systems:		Feb2E	25
DISCRETE PARTS		Control International: Don't Miss the Bus to CIM, Boult,			Sealed Keyboards: Protecting	TFT Technology in Human ma- chine Interface, Fromm-		
MANUFACTURING, see		Raymond	Aug 1	16	The Achilles' Heel of Con- trols, Oct 56	Ayass, Reinhard	Oct2E	37
Manufacturing Control		Control International: Making CIME Pay in Europe, Boult,			Enclosures Add Value to Opera-	Up Front: Foxboro Speeds Up I/A Series Display,	April	9
E		Raymond	June 2	20	tor Interface Performance, Tobiason, Terry Oct2E 10	Up Front: Operator Interface		
EDITORIALS		Control International: Quality in Manufacturing Means Reli-			World Market Demands Spawn	Key Segment,	Oct2E	7
Business Directions: One Wall		able Instruments, Boult,			Innovative Enclosure Designs, Stockdale, Robert Feb 52	for Under \$5,000,	May	9
Down, One to Go, Blickley, George	Sept 13	Raymond	April 4	40		What You Get Is What You See, Laduzinsky, Alan	Oct2E	59
Business Directions: Outlook	Sept 10	sion by PC: The French Have			EXPERT SYSTEMS, see also Artificial Intelligence	Windows 3.0 Leads Next Wave		-
for Controls Mixed, Blickley, George	July 11	a Word for It, Boult, Raymond Control International: The Fu-	May 1	16	Expert System Applications in	of OI Software Innovation, Morin, Dennis	Oct2E	63
Control International: ABB	y	ture of Manufacturing indus-			Advanced Control Systems, Kompass, Edward July 51	X Windows Comes To Real-		
Hosts Process Automation "Summit" in Sweden, Boult,		try, Boult, Raymond		18	Neural Network Software As-	Time Operating Systems,	Mar2E	67
Flaymond	Oct 22	"Brain" Comes, Boult,			sists Expert System, Verduin, William July 37			
Trends in Control: No Shortage of New Ones, Ledgerwood,		Raymond	Mar 2	24		HYDRAULICS, see Fluid Pov	wer	
Byron	Oct 262	nology Prospering in the U.K.,			F			
Commentary on Control: 1991: A Pivotal Year for Changes in		Babb, Michael	July 2	27				_
Control, Kompass, Edward	Jan 117	Editorial: At Last, Fieldbus May See the Light of Day, Babb,			Fiber Optic Sensors Compete In	INDUSTRIAL CONTROL, see	e	
Commentary on Control: Com- puter Control and PID Algo-		Michael	Oct (63	Process Variable Metrics,	Manufacturing Control		
rithms, Kompass, Edward	June 113	Editorial: Boards and Controls, Barry, ThomasAu		5	Bailey, S Oct 131	INTEGRATED CIRCUITS		
Commentary on Control: Con- trol Conference Tracking the		Editorial: First "Census" of U.S.			FLOW	Bringing Communications to Al- ready Intelligent Devices,		
Trends, Kompass, Edward	Aug 97	Industrial Automation, Babb, Michael	June 4	43	Mass Flow Measurement Aided		FebLS	6
Commentary: Getting Control Loops Back in the Field,		Editorial: ISO 9000: The Ticking			by Coriolis Methods, Blickley, George	Microsensors Enhance Process Variable Transmitters' Abili-		
Kompass, Edward	Oct 261	Bornb, Part 1, Babb, Michael Editorial: ISO 9000: The Ticking	April 4	45	New Coriolis Meter Cuts Pres-	ties, Morris, Henry	Oct 1	122
Commentary on Control: Let's Put Real Power in Digital		Bomb, Part 2, Babb, Michael	May	45	sure Drop in Half, Babb, Michael Oct 85	Up Front: Memory Chip Stores Analog Data,	Feb	9
Loop Controllers, Kompass,		Editorial: Networking in the		40	Using Thermal Mass Flow to	INTEGRATED CONTROL SY	CTEM	e
Commentary on Control: More	July 89	Basement, Babb, Michael Editorial: PCs Have Proven	- and	49	Meet Clean Air Require- ments, Blickley, George Oct 101	see Distributed Control	OIEM	ъ,
Comments on Changes in In-		Their Worth in Industrial Con-		00		INTERNATIONAL CONTROL		
dustrial Control, Kompass, Edward	April 135	trol, Babb, Michael Editorial: Products and sys-	Feb :	33	FLUID POWER Control Devices and Systems:	Applications: The General Mo-		
Commentary on Control: The		tems, The Old Questions,		40	Hydraulic Muscle for Simula-	tors' OMI Strategy,	July2E	63
First Closed-Loop War, Kom- pass, Edward	Mar 157	Babb, Michael	Jan	43	tion Tests, Sept 42 Electrohydraulics: Motion Con-	Building a Stronger PLC Line Brick by Brick, Babb, Michael	Mar	54
Commentary on Control: To- ward Closed-Loop Control-		the French Coalition Forces,		50	trol Alternative for Today and	Business Directions: One Wall		
lers That Work, Kompass,		Editorial: The Reshaping of the	Mar	53	Tomorrow, Graebert, Eric Feb 66 Hydraulic Control System Anal-	Down, One to Go, Blickley, George	Sept	13
Commentary on Control: U.S.	May 161	Industrial PC, Babb, Michael	Aug	37	ysis Using Network Simula-	Control International: ABB Hosts Process Automation		
Giving Up Control And Tech-		Editors' Choice: For the fifth year, CE honors the 21 most			tion, Sikora, Mark Sept 70	"Summit" in Sweden, Boult,		
nology, Kompass, Edward Commentary: Why Control	Feb 107	significant new products in a	1		FUZZY LOGIC, see also Artrificial	Raymond	Oct	22
Needs Smart Actuators,		showcase of innovation, Mor- ris, Henry	July2E	5	Intelligence Clear Vision of Fuzz- Logic, In-	of the Parts in Place, Bartos,		
Control Business Directions:	Sept 147	Trends in Control: Acquisitions			felise, Nick July 28	Frank	Jan	54
Control Business Still Grow-		Can Be Tricky, Ledgerwood, Byron	Mar 1	58		Giving Up Control And Tech-		
ing, Blickley, George Control Business Directions:	May 13	Trends in Control: An Integra-		-		nology, Kompass, Edward Control Business Directions:	Feb	107
Control Spending-What and		tor's Opportunity, Ledger- wood, Byron	Feb 1	08	GRAPIC DISPLAY, see Data Display	Drifting into the New Econom-		
Where, Blickley, George Control Business Directions:	Oct 13	Trends in Control: Control Cut-				ics for the 1990s, Blickley, George	Mar	13
Drifting into the New Econom-		Byron		14	H	Control Business Directions:		
ics for the 1990s, Blickley, George	Mar 13	Trends in Control: From Gunk				European Controls Industry Shows Good Performance,		
Control Business Directions:		to Pieces, Ledgerwood Byron	May 1	HA2	HIERARCHICAL CONTROL, see Computer Control	Blickley, George	Aug	13
European Controls Industry Shows Good Performance,		Trends in Control: It's Hard to)			Control Business Directions: Looking for New Markets,		
Blickley, George	Aug 13	Believe, Ledgerwood, Byron.		90	HUMAN-MACHINE INTERFACING	Blickley, George		13
Control Business Directions: Factory Controls Sales About		Trends in Control: Patent Squabbles Continue, Ledger-			Applications. Compact Work- station Improves Co-extru-	Control International: Channel Tunnel: Everything is Under		
Even, Blickley, George	June 13	wood, Byron		118	sion Control, July2E 85	Control, Boult, Raymond	Jan	20
Control Business Directions: Looking for New Markets,		Trends in Control: Plenty of Small Markets, Ledgerwood			Applications: The General Mo- tors' OMI Strategy,July2E 63	Control International: Control Personality Honored, Boult,		
Blickley, George	Jan 13	Byron	. Aug	98	Color TFT LCDs Find a Place in	Raymond	July	Int2
Control Business Directions: Spinoffs Good for Control,		Trends in Control: The Last of the Milwaukee Three?, Led-			Operator Interfaces, Stoffel, Jane Oct2E 47	Control International: Don't Miss the Bus to CIM, Boult,		
Blickley, George	April 13	gerwood, Byron	. April 1	136	Control Devices and Systems:	Raymond	Aug	16
Control International: Channel Tunnel: Everything is Under		Trends in Control: Systems In- tegrators Increase Visibility			Sealed Keyboards: Protecting The Achilles' Heel of Con-	Control International: Making CIME Pay in Europe, Boult,		
		Ledgerwood, Byron					June	20

ELECTRICAL CONNECTION
Nothing Works Until it's Hooked
Up By Cable and Wire, Morris, Henry
Mar 85
ELECTRICAL CONNECTION
Nothing Works Until it's Hooked
Up By Cable and Wire, Morris, Henry
Mar 85
Control Architecture Development, Bukow, Hans
Mar2E 63

EDUCATION, see Control Engineers, Professional Development

I

Able Instruments, Boult. Second Propose and Size Will Propose and	Control International: Quality in			Control Devices and Systems:	Control International: Don't	MOTORS & CONTROLLERS
Design Control immunitories to Business (Control immunitories the Business (Septiment Septiment) (Control immunitories the Business (Septiment) (Control immunitories)	Manufacturing Means Reli- able Instruments, Boult,			Duel PLCs, LAN for Control Synergy, Jan 36	Miss the Bus to CIM, Boult, Raymond	A New Advantage for Motor Starters, Babb, Michael Sept 50
Machine Mach		April	40			
Dayse integration Front the Corner International Supervision by NC The French Neep May 19 Centre International The Public of Machine International Supervision by NC The French Neep May 19 Centre International The Public of Machine International Supervision by NC The French Neep May 19 Centre International The Public of Machine International Supervision by NC The French Neep Machine International Supervision by NC The French Neep Machine International Supervision by NC The French Neep Machine International Supervision by NC The Supervision International International Supervision International Supervision International Supervision International International Supervision International I						Solves Conveyor Glitch, July2E 32
flagmond. Decree for Board. Reprod Control (Reprod Control (Re						
Correct International: Supervisor As Word for it Book Hamilton (Protect International: The Future Proteins of Management Protection (Proteins of Management Protection (Proteins of Management Proteins of Management Proteins of Management Proteins (Proteins of Management Proteins of Management Proteins of Management Proteins (Proteins of Management Proteins of Management Proteins of Management Proteins (Proteins of Management Proteins of Management Proteins of Management Proteins of Management Proteins (Proteins of Management Proteins (Proteins of Management Proteins of Management Proteins of Management Proteins of Management Proteins (Proteins of Management Proteins of Management Proteins of Management Proteins of Management Proteins (Proteins of Management Proteins of Management Proteins of Management Proteins of Management Proteins (Proteins of Management Proteins of Management Proteins of Management Proteins of Management Proteins (Proteins of Management Proteins (Proteins of Management Proteins of Management Protein		Feb	20	Field To the Control Room,		
A Word for It Book, Raymond Common International The Foreign of the Michael Spring of th						It's Not All Quiet on the Electric
Correct International: The Future of Manufacturing recomposition R		Many	16			
Earl of Manufacturing includes and proposed on the Press of Committed Control Win-Press of Co		ronay	10			
Beginnord. Sept 10 Beginnord. Mar 24 Beginnord. Sept 10 Beginno						
Correct infernational When the Magneting Age of the Correct Age of the		Sept	18		Power Line Communication,	
Raymond. State of the Common Part 2 Residual And States (Common Part 2						
Electrical: Annexican DCS Technology Prospers in the U.X. Joy 25 Editorials At Last, Fieldbuck May 25 Editorials At Last, Fieldbuck May 25 Editorials (20 1000). The Taking (20 1000) The Taking (20		Mar	24			
producy Proposed in the U.K. Base, McHaile Beach, McHaile Beach Light of Dily, Babb, College the Light o		Printer.	24			N
Editorial A Latt Fieldows May Editorial 2000 The Toking Bellows, Part 2, Basks, Michael Editorial 500 900. The Toking Bellows, Editorial 500 900. The Toking Bellows Bellows,						
Formal Labry Fronton Bodger (1) Service Foods (1) Service Latry (1) Service Apply Caulty Elber (1) Service Apply Caulty Elbe		July	27		Floor Data and Control, Con-	AIRTHAN AIRTHANNIN
Micros Editories (S. 900). The Tuking Brown, New York, Natha, Mortal Stationary (S. 900). The Tuking Brown, New York, Natha, Mortal Stationary (S. 900). The Tuking Brown, New York, Natha, Mortal Stationary (S. 900). The Tuking Brown, Natha, Mortal Stationary (S. 900). The Tuking Stationary (S. 900). The Next	Editorial: At Last, Fieldbus May					
Eletrones (SO 9000: The Ticking April 45 Clinicals (SO 9000: The Ticking Solitones (SO 9000: The Ticking Solitones) (Solitones) (S		Oct	63			
Biblioch, Part T, Babb, Michael Biblioch, Part Z, Babb, Michael Biblioch, Part Z, Babb, Michael Biblioch, Part Z, Babb, Michael Biblioch,		OCI	00			
Editorial: 150 9800. The Tacking Model. Bellow Michael Control Could for Part Statistics (Location), Aug. 51 Use Partners in Could for Partners in Country (Location), Aug. 51 Use Partners in Country (Location), Aug. 52 Use Partners in Country		April	45			
Bobe, Part 2, Babb, Michael. Bottonia: Square Decorating Pictorial Pictoria						
The French Colation Forces. Mar. Selectorist The Reshaping of the Selectorist The Reshaping of the Mar. Selectorist The Reshaping of Mar. Selectorist The Reshapi	Bomb, Part 2, Babb, Michael	May	45			sists Expert System, Verduin,
Sasto, Michael Social The Beshaping of the brobasses PC, Bacit, Michael Aug 53 MACHINE CONTROL Morris, Keith Lood, Measurement PC, Bacit, Michael Aug 53 MACHINE CONTROL Morris, Keith Lood, Measurement Techniques, Service Book, Reynold Control Gear Gindor, July 52 Corntrol Devices and Systems: Social High Michael Corntrol Devices and Systems: Service Control, Chapter Control, Potential Systems: Social Representation of the Michael Street, Ladjacenous, Mary 63 Corntrol Devices and Systems: Service Control, Chapter Co						ventarin July 37
Machinest Processing Apply Dustry Ethics Machinest Processing Apply Dustry Processing Apply Du		Mar	62	Leap, Oct 9		0
Jaganese Apply Gardyse Entrology Causty Either To Evaluating Technology Causty Either To Evaluating Technology August 2 Entrology Causty Either To Evaluating Technology August 2 Entrology Causty Either To Evaluating Technology August 2 Entrology Causty Entrology Causty Either To Evaluating Technology August 2 Entrology Causty Either Control Can Be Tricky, Ladgerwood, Byron. Level Measurement Techniques. Speed Up, Simplify Packago on Delevine Ladgerwood, Byron. Speed Up, Simplify Packago on Delevine Ladgerwood, Byron. South Speed Up, Simplify Packago on Delevine Ladgerwood, Byron. South Speed Up, Simplify Packago on Delevine Ladgerwood, Byron. South Speed Up, Simplify Packago on Delevine Ladgerwood, Byron. South Speed Up, Simplify Packago on Delevine Ladgerwood, Byron. South Speed Up, Simplify Packago on Delevine Ladgerwood, Byron. South Speed Up, Simplify Packago on Delevine Ladgerwood, Byron. South Speed Up, Simplify Packago on Delevine Ladgerwood, Byron. South Speed Up, Simplify Packago on Delevine Ladgerwood, Byron. South Speed Up, Simplify Packago on Delevine Ladgerwood, Byron. South Speed Up, Simplify Packago on Delevine Ladgerwood, Byron. South Speed Up, Simplify Packago on Delevine Ladgerwood, Byron. South Speed Up, Simplify Packago on Delevine Ladgerwood, Byron. South Speed Up, Simplify Packago on Delevine Ladgerwood, Byron. South Speed Up, Simplify Packago on Delevine Ladgerwood, Byron. July 20 Up Forcit Getting Department Land Interview, Speed Up, Simplify Packago on Delevine Square Delevine Language Up, Simplify House, Speed Up, Simplify Packago on Delevine Ladgerwood, Byron. July 20 Up Forcit Getting Department Language Up, Speed Up, Simplify Packago on Square Delevine Language Up, Speed Up, Simplify Packago on Delevine Langu		wiar	33	NA NA		
Japanese Apply Quality Efficit Technology. Morzi, Keith Loud Measurement Choices. Augl. 5 10 Measuroes Highlights PCLs and Aug 30 Measuroes Highlights PCLs and Aug 30 Measuroes Highlights PCLs and Augustions. Bout, Raymond Measurement Techniques. Bout, Raymond Measurement Techniques. Bout, Raymond Measurement Techniques. Bout, Raymond Measurement Techniques. Bout, Raymond Messurement Techniques.		Aug	37	N W		
MACHINE CONTROL Morris, Keith						OBJECT DETECTION AND
Morris, Reith — Augl. 5 10 Lovel Measurement Ocioces, Aug. 5 10 Lovel Measurement Techniques, Septembrook, Gergrey — Marchine Control	To Evaluating Technology,			MACHINE CONTROL	CIM Speeds It, Laduzinsky,	
Bestury Georges Aug 30 Reacons Horitoris PLCs and Measurement Techniques, Bout, Raymon Commister Sept 50 Gent Control Covers and Systems: Sept 50 Gent Covers and Systems: Sept 60 Gent Covers and Systems: Se	Morris, Keith	AugLS	10			
Dest Giricider — Judy2E 123 Control Devices and Systems: Speed Up, Simplify Package, ing Line Mean Step on PLC Support Speed Up, Simplify Package, ing Line Mean Step on PLC Support Softwere, Hager, Bob. — Fe02 39 Trends in Control: Patenth Squatables Continue, Logger- wood, Byron — Trends in Control: Patenth Squatables Continue, Logger- wood, Byron — Trends in Control: Patenth Squatables Continue, Logger- wood, Byron — Trends in Control: Patenth Squatables Continue, Logger- wood, Byron — Trends in Control: Patenth Squatables Continue, Logger- wood, Byron — Trends in Control: Patenth Squatables Continue, Logger- wood, Byron — Trends in Control: Patenth Squatables Continue, Logger- wood, Byron — Trends in Control: Patenth Squatables Continue, Logger- wood, Byron — Trends in Control: Patenth Squatables Continue, Logger- wood, Byron — Trends in Control: Patenth Squatables Continue, Logger- wood, Byron — Trends in Control: Patenth Squatables Continue, Logger- wood, Byron — Trends in Control: Patenth Squatables Continue, Logger- wood, Byron — Trends in Control: Patenth Squatables Continue, Logger- wood, Byron — Trends in Control: Patenth Squatables Continue, Logger- wood, Byron — Trends in Control: Patenth Squatables Continue, Logger- wood, Byron — Trends in Control: Patenth Squatables Continue, Logger- wood, Byron — Trends in Control: Patenth Squatables Control: Speed Squatab		A	20			ON-LINE ANALYZER3
Measurement Techniques, Boott, Raymond June 19 59 Sept 60 Ly, Simplify Eckage 19 50 Sept 19 Se		Atig	39			
Bout, Raymond Trends in Control: Acquisitions Can Be Tricky, Ladgerwood. Byron. Mar 158 Display Policia Similar PLC Blass Control: Standard Profession Frank Bellews, Ledgerwood. Byron. Trends in Control: Patent Squabbles Con						
Trends in Control: The Last of the Mines Long Deformance Process and Systems. Sample Fronty, Ledgerwood, Byron. If a No. All Defere Ledgerwood, Byron. If a No. All Defere They Steep, Bartos, Frank. Last Square Steep Front, Bartos, Frank. Sample Fronty, Ledgerwood, Byron. June 9 Up Front: A-0, ABB to Part Way. May 150 Up Front: A-1, ABB to Part Way. May 150 Up Front: A-1, ABB to Part Way. May 150 Up Front: A-1, ABB to Part Way. May 150 Up Front: A-1, ABB to Part Way. May 150 Up Front: A-1, ABB to Part Way. May 150 Up Front: A-1, ABB to Part Way. May 150 Up Front: A-1, ABB to Part Way. May 150 Up Front: A-1, ABB to Part Way. May 150 Up Front: A-1, ABB to Part Way. May 150 Up Front: A-1, ABB to Part Way. May 150 Up Front: A-1, ABB to Part Way. May 150 Up Front: A-1, ABB to Part Way. May 150 MACHINE VISION, see also Positioning Way. May 150 MACHINE VISION, see also Positioning Way. MACHINE VISION, see also Control of Machine May. MACHINE VISION, see also Positioning Way. MACHINE VISION, see also Machine May. MACHINE VISION, see also Machine May. MACHINE VISION, see also Machine Machine May.		Sept	59	Speed Up, Simplify Packag-		ris, Henry July 43
DC Drives Silt Have Miles to Go Bero They Sience, Barton, Frank. De Control: Patient In Mart 156 Trends in Control: Patient I						
Before They Stepe. Bartos. First A. Sellerov. Loggerwood. Spron. Frends in Control: Patent Squabbles Control. Frends in Control: The Last of the Minisuakeer Three?, Lodgerwood, Byron. July 19 MACHINE VISION, see also Positioning of the Minisuakeer Three?, Lodgerwood, Byron. Dip Front: A-B. ABB to Part Loggerwood, Byron. Oct 19 Dip Front: A-B. ABB to Part Loggerwood, Byron. Oct 19 Dip Front: A-B. ABB to Part Loggerwood, Byron. Oct 19 Dip Front: A-B. ABB to Part Loggerwood, Byron. Oct 19 Dip Front: A-B. ABB to Part Loggerwood, Byron. Oct 19 Dip Front: A-B. ABB to Part Loggerwood, Byron. Oct 19 Dip Front: A-B. ABB to Part Loggerwood, Byron. Oct 19 Dip Front: A-B. ABB to Part Loggerwood, Byron. Oct 19 Dip Front: A-B. ABB to Part Loggerwood, Byron. Oct 19 Dip Front: A-B. ABB to Part Loggerwood, Byron. Oct 19 Dip Front: A-B. ABB to Part Loggerwood, Byron. Oct 19 Dip Front: A-B. ABB to Part Loggerwood, Byron. Oct 19 Dip Front: Selenting Together. April 36 Dip Front: Selenting Together. April 36 Dip Front: Selenting Together. April 36 Dip Front: Selenting Together. April 37 Dip Front: Selenting Together. April 38 MACHINE VISION, see also Positioning of Systems. Select It is a Selection Together. April 37 Dip Front: Selecting Together. April 38 Dip Front Selecting Together. April 38 Dip Front Selecting Together. April 39 Dip Front: Selecting Together. April 30 Dip Front: Selecting Together. April 47 Trush Selecting Together. April 47 Trush Selecting Together. April 47 T						
First Notice it's reaction of patient in Secretary 19 of the April 2 of the Minusukee Prince? Last of the Minusukee Prince? La		Mar	158			
Trends in Control: Patent Squabbles Controls. Larger wood, Byron. Jan 118 Trends in Control: The Last of the Mikraukee Three?, Ledgerwood, Byron. Jan 118 MACHINE VISION, see also Positioning OCT 9 Up Front: A-B. ABB to Part Ways. Up Front: Getting Together. April. Tollencanique. Jup Front: Schneider Seals the Up Front: A-B. ABB to Part Ways. Up Front: Schneider Seals the Up Front: Schneider Seals the Up Front: A-B. ABB to Part Ways. June 20 June 20		Tealer	00			
Sequebbles Continue, Lodgerwood, Byron — Using a PC to Control a Transfer Line, Lasalise, Ronald. Feb2E 43 Feb2E 43 Feb2E 43 Front A Bit 189 F		July	90			
wood, Byron						. P
Trends in Control Freeze Ladgerwood, Byron or Ladgerwood, Byron or Language Trends, Ladgerwood, Byron or Language Trends, Ladgerwood, Byron or Language Control Devices and Systems: Agril 196 (Dept. 1971) Front: Schemedre Seals the Dead on Square D. Up Front: Actin Control Language Control Lang	wood, Byron	Jan	118		Using a PC to Control a Trans-	
gerwood, Byron. April 136 Up Front: Sethal, ABB to Pat. Ways, S. Up Front: Getting Together: April, Telemecanique, Muly Up Front: Senkeder Seals the Deal on Square D, June Up Front: Shender Seals the Deal on Square D, June Up Front: Shender Seals the Deal on Square D, June Up Front: The US. Has an Image Problem. Age Problem. Age Problem. Age Problem. Age Problem. Age Problem. Age Robert Signes, Stockdake, Robert Solves Correleger Gelicular Strategy. L L L L L L L L L L L L L				her Cine, Cavange, Honard Petize 43	fer Line, Lavallee, Ronald Feb2E 43	
Up Front: Schmeder Seals the Dear to Query Front: Schmeder Seals the Dear to Square D, June 9 Positioning Control Devices and Systems: Neural Nets Now Offer Cost-Effective Visual Inspection, July 22 MANUFACTURING CONTROL Align-Bradley Holts 1771 Flag: Says it Will Wave Forever, Backplane for Open Control Architectures, Laduzinsky, Aldragit LPG Trends, Kompass, Edward Aug 97 Red Schlame for Open Control Architectures, Laduzinsky, Aldragit LPG Trends, Kompass, Edward Aug 97 Red Schlame for Open Control Architectures, Laduzinsky, Aldragit LPG Trends, Kompass, Edward Aug 97 Red Schlame for Open Control Architectures, Laduzinsky, Aldragit LPG Trends, Kompass, Edward Aug 97 Red Schlame for Open Control Architectures, Laduzinsky, Aldragit LPG Trends, Kompass, Edward Aug 97 Red Schlame for Open Control Architectures, Laduzinsky, Aldragit LPG Trends, Kompass, Edward Aug 97 Red Schlame for Open Control Architectures, Laduzinsky, Aldragit LPG Trends, Kompass, Edward Aug 97 Red Schlame for Open Control Architectures, Laduzinsky, Aldragit LPG Trends, Kompass, Edward Aug 97 Red Schlame for Open Control Architectures, Laduzinsky, Aldragit LPG Trends, Kompass, Edward Aug 97 Red Schlame for Open Control Architectures, Laduzinsky, Aldragit LPG Trends, Kompass, Edward Aug 97 Red Schlame for Open Control Architectures, Laduzinsky, Aldragit LPG Trends, Kompass, Edward Aug 97 Red Schlame for Open Control Architectures, Laduzinsky, Aldragit LPG Trends Aug 14 Applications: Molecular All All All All All All All All All Al			400			PERSONAL COMPUTERS
Ways, Oct Option Getting Together: April, Telemecanique, Muly 19 Front: Schender Seals the Deal on Square D, June 19 Front: Schender Seals the Deal on Square D, June 19 Front: Schender Seals the Deal on Square D, June 19 Front: The US. Has an Image Problem. Age Richards Problem. Age Richards Problem. Age Problem. Age Problem. Age Problem. Age Richards Pr			136		Seibert, Iris Aug 59	
Up Front: Schneider Seals the Deal on Square D, June 9 Up Front: Sheneider Seals the Deal on Square D, June 9 Up Front: Sheneider Seals the Deal on Square D, June 9 Up Front: Sheneider Seals the Deal on Square D, June 9 Up Front: Sheneider Seals the Deal on Square D, June 9 Up Front: Sheneider Seals the Deal on Square D, June 9 Up Front: Sheneider Seals the Deal on Square D, June 9 Up Front: Sheneider Seals the Deal on Square D, June 9 Up Front: Sheneider Seals the Deal on Square D, June 9 Up Front: Sheneider Seals the Deal on Square D, June 9 Up Front: Sheneider Seals the Deal on Square D, June 9 Up Front: Sheneider Seals the Deal on Square D, June 9 Up Front: Sheneider Seals the Deal on Square D, June 9 Up Front: Sheneider Seals the Deal on Square D, June 9 Up Front: Sheneider Seals the Deal on Square D, June 9 Up Front: Sheneider Seals the Deal on Square D, June 9 Up Front: Sheneider Seals the Deal on Square D, June 9 Up Front: Sheneider Seals the Deal on Square D, June 9 Up Front: Sheneider Seals the Deal on Square D, June 9 Up Front: Sheneider Seals the Deal on Square D, June 19 Up Front: Sheneider Seals the Save State State S			9		MEETINGS	
April, Telemecanique, May 9 Leffective Visual Inspection, July 22 Up Front Schneider Seale the Deal on Square D, June 9 Up Front Simens Agrees: Ti is Ties Water Problem, May 19 Up Front The U.S. Has an Image Problem, May 19 Up Front The U.S. Has an Image Problem, May 19 Up Front The U.S. Has an Image Problem, May 19 Up Front Seale Schneider Spawn Innovative Enclosure Designs, Stockdale, Robert Peb 3 Applications: Industrial Computer Control of Problem, May 25 Up Front A B PLC to connect to Genius (197). Up Front: A B PLC to connect to Genius (197). Up Front: A B PLC to connect to Genius (197). Using I/O with Minimal Hardware, Harte, George Mar/25 LEVEL Centrol Devices and Systems: Do Sight Glass Level Survallation Automatically April Control Devices and Systems: Do Sight Glass Level Survallation. April 81 Tank Gaging Transmitter Performs More Functions, Bick- ley, George Aug 44 LOCAL AREA NETWORKS Commentary: Getting Control Devices and Systems: Duel PLCs, LAN for Control Devices and Systems: Speed Up, Simplify Peckag- ing Line Visual Inspection, July 22 The Device of the Put in Place of Control Systems: Speed Up, Simplify Peckag- ing Line Visual Inspection, July 22 The Device of the Put in Place of Control Devices and Systems: Speed Up, Simplify Peckag- ing Line Visual Inspection, July 22 The Device and Systems: Speed Up, Simplify Peckag- ing Line Visual Inspection, July 22 The Device of the Put in Place of Control Devices and Systems: Speed Up, Simplify Peckag- ing Line Visual Inspection, July 22 The Device of Control Devices and Systems: Speed Up, Simplify Peckag- ing Line Visual Inspection, July 22 The Device of Control Devices and Systems: Speed Up, Simplify Peckag- ing Line Visual Inspection, July 22 The Device of Control Devices and Systems: Speed Up, Simplify Peckag- ing Line Visual Inspection, July 22 The Device of Control Devices and Systems: Speed Up, Simplify Peckag- ing Line Visual Inspection, July 22 The Device of Control Devices and Systems: Speed Up, Simplify Peckag- ing Line Visual Inspection						
Up Front: Schneider Seals the Deal on Square D, June 9 Up Front: Siemens Agrees: Ti is Ties V Sulur f. June 9 Alan-Bradley Ho'::bs 1771 Flag: Says it Will Wave Forever, Elabb. Michael. — April 85 Single-Point The U.S. Has an image Problem. — Oct 9 Signs, Stockdale, Robert. — Feb. 52 Floor Control Evices: Motor Controller Schwer Controls: CNO Procisions: Motor Controller Schwer Control Controller Schwer Controller Single-Point I/O Boosts Controller Solves Conveyor Glitch. — July2E 101 Applications: The General Motor's OMI Strategy. — July2E 101 Applications: The General Motor's OMI Strategy. — July2E 50 Building a Stronger PLC Lime Brick by Brick, Babb, Michael Control Research Single-Point I/O Boosts Controller Solves Conveyor Glitch. — July2E 101 Applications: The General Motor's OMI Strategy. — July2E 50 Building a Stronger PLC Lime Brick by Brick, Babb, Michael Control Research Solves Controller Solves C			9			
De Front: The U.S. Has an Image Problem. Up Front: The U.S. Has an Image Problem. Oct 9 World Market Demands Spawn Innovative Enclosure Designs, Stockdale, Robert. Feb 52 I/O MODULES Single-Point I/O Boosts Controller Solves Conveyor Gittch. Up Front: AB PLC to connect to Gemius I/O? Up Front: AB PLC to connect to Gemius I/O? Using I/O with Minimal Hardware, Harrie, George. Mary E LEVEL Control Devices and Systems: Do Sight Glass Level Survall-lance Automatically. Feb 28 Servo and Stepper, Both Used in Tank Gage, Blickley, George. Draw Gage, Blickley, George. April 31 Servo and Stepper, Both Used in Tank Gage, Blickley, George. Draw Gage, Blickley, George. April 32 Servo and Stepper, Both Used in Tank Gage, Blickley, George. Draw Gage, Blickley, George. April 31 Servo and Stepper, Both Used in Tank Gage, Blickley, George. Draw Gage, Blickley, George. Draw Gage, Blickley, George. Draw Harries George. April 31 Servo and Stepper, Both Used in Tank Gage, Blickley, George. Draw Gage, Blickley, George. Draw Harries George. April 31 Servo and Stepper, Both Used in Tank Gage, Blickley, George. Draw Gage, Blickley, George. Draw Harries George. April 31 Servo and Stepper, Both Used in Tank Gage, Blickley, George. Draw Harries George. April 32 Servo and Stepper, Both Used in Tank Gage, Blickley, George. Draw Harries George. April 35 Single-Point I/O Boosts Control Devices and Systems: Park in Place, Bartos, Frank. April 36 Servo and Stepper, Both Used in Tank Gage, Blickley, George. Douberde and Systems: Double View Standins Special Systems: Park Show Office Cost-Forms More Functions, Blickley, George. Double States Jazz Up Vivie States, Laduzinsky, Aldaugh Peb 22 Silectional Standard Control Architecturas, Laduzinsky, Aldaugh Peb 23 Silectional Scandard Control Architecturas, Laduzinsky, Aldaugh Peb 24 Servo Alloyer Control Scandard Control Architecturas, Laduzinsky, Aldaugh Peb 24 Servo Alloyer Control Scandard Architecturas, Laduzinsky, Aldaugh Peb 24 Servo Alloyer Control Architectur						
Tibest Visible** Tibest Visible** June 9 June 10p Front: The U.S. Has an Image Problem. Oct 9 World Market Demands Spawn Innovative Enclosure 0e- signs, Stockdale, Robert. Feb 52 N/O MODULES Single-Point I/O Boosts Controlier Solvee Controller Solvee Control			9	MANUFACTURING CONTROL		
Up Front: The U.S. Has an Image Problem. Says It Wall Wave Foreer. Babb, Michael. Applications: Industrial Computer Controls CNC Precision Gear Grinder. Applications: Motor Controller Solves Conveyor Gilitch. July2E 123 Applications: Standardization Through Cilit. July2E 104 Applications: Standardization Through Cilit. July2E 105 Applications: Standardization Through Cilit. July2E 107 Applications: Standardization Through Cilit. July2E 107 Applications: Standardization Through Cilit. July2E 108 Applications: Standardization Through Cilit. July2E 109 Applications: Standardization Through Cilit. July2E 101 Applications: Standardization Through Cilit. July2E 101 Applications: Motor Controller Solves Conveyor Gilitch. July2E 101 Applications: Standardization Through Cilit. July2E 101 Applications: Standardization Through Cilit. July2E 101 Applications: Motor Controller Solves Conveyor Gilitch. July2E 101 Applications: Standardization Through Cilit. July2E 101 Applications: Motor Control See Applications: Standardization Through Cilit. July2E 101 Applications: Motor Control See Applications: Standardization Through Cilit. July2E 101 Applications: Motor Control See Applications: Motor Control See Visibility. July2E 101 Applications: Motor Control See Applications: Motor Control See Visibility. July2E 101 Applications: Motor Control See Applications: Motor Control See Visibility. July2E 101 Applications: Motor Control See Visibility. July2E 101 Applications: Motor Control See Applications: Motor Control See Visibility. July2E 101 Applications: Motor Control See Visibility. July2E 101 Applications: Motor Control See Visibility. July2E 102 Applications: Motor Control See Visibility. July2E 101 Applications: Motor Control See Visibility. July2E 102 Applications: Motor Control See Visibil						
Babb, Michael April 85 Applications: Industrial Comput- er Controls CNC Precision Innovative Enclosure De- signs, Stockdale, Robert Peb Single-Point I/O Boosts Con- troffer Family, Babb, Michael April 47 Up Front: A-B PLC to connect to Genius I/O? Using I/O with Minimal Hard- weire, Hartle, George Mar 25 LEVEL Control Devices and Systems: Do Sight Glass Level Surval- lance Automatically, Feb 28 Servo and Stepper, Both Used in Tank Gaging Transmitter Per- forms More Functions, Blick- ley, George Aug 44 LOCAL AREA NETWORKS Commentary: Getting Control Loops Back in the Field, Applications: Motor Controller Solves Conveyor Giltch, July 2E 104 Applications: Motor Controller Solves Conveyor Giltch, July 2E 104 Applications: Motor Controller Solves Conveyor Giltch, July 2E 104 Applications: Motor Controller Solves Conveyor Giltch, July 2E 104 Applications: Motor Controller Solves Conveyor Giltch, July 2E 104 Applications: Motor Controller Solves Conveyor Giltch, July 2E 104 Applications: Motor Controller Solves Conveyor Giltch, July 2E 104 Applications: Motor Controller Solves Conveyor Giltch, July 2E 104 Applications: Motor Controller Solves Conveyor Giltch, July 2E 104 Applications: Motor Controller Solves Conveyor Giltch, July 2E 104 Applications: Motor Controller Solves Conveyor Giltch, July 2E 104 Applications: Motor Controller Solves Conveyor Giltch, July 2E 104 Applications: Motor Controller Solves Conveyor Giltch, July 2E 104 Applications: Motor Controller Solves Conveyor Giltch, July 2E 104 Applications: Motor Controller Solves Conveyor Giltch, July 2E 104 Applications: Motor Controller Solves Conveyor Giltch, July 2E 104 Applications: Motor Controller Solves Conveyor Giltch, July 2E 104 Applications: Motor Controller Solves Conveyor Giltch, July 2E 104 Applications: Motor Controller Solves Conveyor Giltch, July 2E 104 Applications: Motor Controller Solves Conveyor Giltch, July 2E 104 Applications: Motor Controller Solves Conveyor Giltch, July 2E 104 Applications: Motor Controller Solves Conveyor Giltch, J			9			
Applications: Inclusing Enclosure Designs, Stockdale, Robert. Feb 52 I/O MODULES Single-Point I/O Boosts Controller Family, Babb, Michael. April Applications: The General Motors of Mistrategy. July Front: AB PLC to connect to Genius I/O? LEVEL Control Devices and Systems: Do Sight Glass Level Survallaliance Automatically, George In Tank Gage, Blickley, George In Tank Gage, Blickley, George Applications: Standardization Control Devices and Systems: Do Sight Glass Level Survallaliance Automatically, Feb 28 Servo and Stepper, Both Used In Tank Gage, Blickley, George Local AREA NETWORKS Commentary: Getting Control Synergy, Local Selections: Mode Control Bevices and Systems: Dual PLCs, LaN Ior Control Synergy, July 22 Local AREA NETWORKS Commentary: Getting Control Synergy, Speechage ing Level Sacks and Systems: Speed Up, Simplify Peckage ing Level Sac			9	Babb, Michael April 85		
Innovative Enclosure Designs, Stockdale, Robert. Feb 52 Applications: Motor Controller Solves Conveyor Glitch, July2E 123 Applications: Standardization Through CliM. Applications: The General Motors OMI Strategy. July2E 101 Applications: The General Motors OMI Strategy. July2E 101 Applications: The General Motors OMI Strategy. July2E 101 Applications: The General Motors OMI Strategy. July2E 102 Applications: Standardization Through CliM. Applications: Standardization Through CliM. Applications: The General Motors OMI Strategy. July2E 103 Applications: Motor Control Interest Visibility. Ledgerwood, Byron. Seibert, Iris. May 8 Multiple Systems Blus, Ladu- July2E 103 Multiple Systems Blus, Ladu- July2E 103 Applications: Motor All Seasons, With More of the PC, Man- off, Michael Aug 15 Multiples Systems Blus, Ladu- July2E 103 Multiple Systems Blus, Ladu- July2E 103 Applications: Motor Control Interest Visibility. Ledgerwood, Byron. Seibert, Iris. May 8 Multiple Systems Blus, Ladu- July2E 103 Multiple Systems Blus, Ladu- July2E 103 Applications: Motor Control Interest Visibility. Ledgerwood, Byron. Seibert, Iris. May 8 Multiple Systems Blus, Ladu- July2E 103 Multiple Syste			9			
Signs, Stockdale, Robert. Feb 52 Gear Grinder. July2E 123 Applications: Motor Controller Solves Conveyor Giltich. July2E 32 Applications: Standardization Through CIM. July2E 32 Applications: Standardization Through CIM. July2E 101 Applications: Standardization Through CIM. July2E 101 Applications: The General Motor Controller Family, Babb, Michael. April 47 Up Front: AB PLC to connect to Genius I/O?. Mar 9 Using I/O with Minimal Hardware. Mar/2E 59 LEVEL Control Devices and Systems: Do Sight Glass Level Survail- lance Automatically, Feb 28 Servo and Stepper, Both Used in Tank Gage, Blickley, George April 81 Control Devices and Systems: Do Sight Glass Level Survail- lance Automatically. Feb 28 Servo and Stepper, Both Used in Tank Gage, Blickley, George April 81 Trank Gage, Blickley, George July 82 Servo and Stepper, Both Used in Tank Gage, Blickley, George April 81 Control Devices and Systems: Dual PLCs, LaN for Control Signs About Performs More Functions, Bick- ley, George April 81 Control Devices and Systems: Speed Up, Simplify Packag- ing Line Vals Small PLC-Based Signs Michaels Septor Control Systems: Speed Up, Simplify Packag- ing Line Vals Small PLC-Based Signs Michael Septor Control Sys- signs Benefit Control Sys- sibert, Isis Modicon's 984 Re-emerges As Apolicans Shab, Michael July 25 Modicon's 984 Re-emerges As Apolicans July 26 Mith High Tech Alematives, Mall Ville Mode of the Parts in Place Babb, Michael Ledural						
Sioles Conveyor Giltch. July2E 32 Applications: Standardization Through CiM. July2E 10 Thro			52			
Applications: Standardization Through CIM, April 47 Up Front: A-B PLC to connect to Genius (/O, Mar 9 Using (/O with Minimal Hard- ware, Hartis, George Mar/2E 59 LEVEL Control Devices and Systems: Do Sight Glass Level Survali- lance Automatically, April 81 Servo and Stepper, Both Used in Tank Gage, Blickley, George Mar 19 Servo and Stepper, Both Used in Tank Gage, Blickley, George Better, forms Mar 19 Servo and Stepper, Both Used in Tank Gage, Blickley, George Data Display LOCAL AREA NETWORKS Commentary: Getting Control Loope Back in the Field, Comtrol Devices and Systems: Speed 19 Applications: Standardization Through CIM, July2E 101 Applications: The General Motors July2E 63 Building a Stronger PLC Line Building a Stronger PLC					Modicon's 984 Re-emerges As	
Single-Point (I) Boosts Controller Family, Babb, Michael. April 47 Up Front: A-B PLC to connect to Genius (I/O? Mar 9) Using I/O with Minimal Hardware, Harria, George Mar/2E 59 LEVEL Control Devices and Systems: Do Sight Glass Level Survallalance Automatically, PEb 28 Servo and Stepper, Both Used in Tank Gage, Blickley, George Bricks: Make Them Faster, Better, Servos Make Them Faster, Better, Control Devices and Systems: Do Sight Glass Level Survallance Automatically, Peb 28 Servo and Stepper, Both Used in Tank Gage, Blickley, George Date Picks: Make Them Faster, Better, Dual PLCs, LAN for Control Systems: Do Sight Glass Level Survallance Automatically, Peb 28 Servo and Stepper, Both Used in Tank Gage, Blickley, George Date Picks: Make Them Faster, Better, Servos and Systems: Do Sight Glass Level Survallance Automatically, Peb 28 Servo and Stepper, Both Used in Tank Gage, Blickley, George Date Picks: Make Them Faster, Better, Dual PLCs, LAN for Control Devices and Systems: Dual PLCs, LAN for Control Devices and Systems: Neural Nets Now Offer Cost-Effective Visual Inspection, July 22 LOCAL AREA NETWORKS Commentary: Getting Control Loope Back in the Field, Single Feb 28 Tank Gage Blick in the Field, Single Feb 29 Tank Gage Block in the Field, Single Feb 29 Tank Gage Block in the Field, Single Feb 29 Tank Gage Block in the Field, Single Feb 29 Tank Gage Block in the Field, Single Feb 29 Tank Gage Block in the Field, Single Feb 29 Tank Gage Block in the Field, Single Feb 29 Tank Gage Block in the Field, Single Feb 29 Tank Gage Block in the Field, Single Feb 29 Tank Gage Block in the Field, Single Feb 29 Tank Gage Block in the Field, Single Feb 29 Tank Gage Block in the Field, Single Feb 29 Tank Gage Block in the Field, Single Feb 29 Tank Gage Block in the Field, Single Feb 29 Tank Gage Block in the Field, Single Feb 29 Tank Gage Block in the Field, Single Feb 29 Tank Gage Block in the Field, Single Feb 29 Tank Gage Block in the Field, Single Feb 29 Tank Gage Block in the Field, Single F	NO MODULES					
Applications: The General Motors' O'MI Strategy, July2E 63 Up Front: A-B PLC to connect to Genius (I/O? Using I/O with Minimal Hardware, Hartis, George	CR - Tributa - T					
Using I/O with Minimal Hardware, Harris, George			47	Applications: The General Mo-		
Using I/O with Minimal Hardware, Hartie, George			41			The second of th
Brick by Brick, Babb, Michael Ware, Harris, George			9			DNEUMATICS san Fluid Power
Control Devices and Systems: Do Sight Glass Level Survails- lance Automatically. Feb 28 Servo and Stepper, Both Used in Tank Gage, Blickley, George						
LEVEL Control Devices and Systems: Do Sight Glass Level Survall- lance Automatically, Servo and Stepper, Both Used in Tank Gage, Blickley, George Monitorial Serves April Tank Gaging Transmitter Performs More Functions, Blickley, George Monitorial Serves About Even, Blickley, George Botter, Do Sight Glass Level Survall- Bricks: Make Them Paster, Botter, Do Sight Glass Level Survall- Bricks: Make Them Paster, Bricks: Make Them Paster, Botter, Don'to Devices and Systems: Don'to Devices and Systems: Bricks: Make Them Paster, Botter, Dual PLCs, LAN for Control Synergy, George Both Used In Tank Gaging Transmitter Performs More Functions, Blick- ley, George Monitor Solves Conveyor Glitch, Dual PLCs, LAN for Control Synergy, Dual PLCs, LAN for Control Effective Visual Inspection, Neural Nets Now Offer Cost- Effective Visual Inspection, Don'to Devices and Systems: Neural Nets Now Offer Cost- Effective Visual Inspection, Dual PLCs, LAN for Control Synergy, Dual PLCs, LAN for Control Control Devices and Systems: Neural Nets Now Offer Cost- Effective Visual Inspection, Dual PLCs, LAN for Control Synergy, Dual PLCs, LAN for Control Synergy, Dual PLCs, LAN for Control Control Devices and Systems: Neural Nets Now Offer Cost- Effective Visual Inspection, Dual PLCs, LAN for Control Synergy, Dual PLCs, LAN for Control Syne			59		Up Front: Ziatech Takes a LON	POSITIONING
Commentary on Control 1991: A Pivotal Year for 1			_		Leap, Oct 9	
LEVEL Control Devices and Systems: Do Sight Glass Level Survail- Iance Automatically. Feb 28 Servo and Stepper, Both Used in Tank Gaging Transmitter Per- forms flore Functions, Bick- ley, George. April 81 Control Devices and Systems: Dual PLCs, LAN for Control Devices and Systems: Neural Nets Now Other Cost- Effective Visual Inspection. July 22 LOCAL AREA NETWORKS Commentary: Getting Control Loops Back in the Field, A Pivotal Year for (**-yes in Control Sales in Control Business Directions: Factory Controls Sales About Even. Blickley, George. June 13 June 13 A New Advantage for Motor Starters, Babb, Michael. Sept 50 Applications: Motor Controller Starters, Babb, Michael. Sept 50 Applications: Motor Controller Starters, Babb, Michael. Sept 50 Applications: Motor Controller Solves Conveyor Glitch, July2 23 DC Drives Stifl Have Miles to Gb Before They Sleep, Bartos, Frank. Arg 48 Advanced Pressure Sensor Designs Benefit Control Systems: Speed Up, Simplify Packag- ing Line Via Small PLC-Based Simplified Electronics for Posi-					MANUFACTURE AND ANNUARCHATING	
Control Devices and Systems: Do Sight Glass Level Survaillance Automatically, Servo and Stepper, Both Used in Tank Gage, Blickley, George April 13 Servo and Stepper, Both Used in Tank Gage, Blickley, George April 13 Tank Gaging Transmitter Performs fore Functions, Blickley, George Aug 44 LOCAL AREA NETWORKS Commentary: Getting Control Loops Back in the Field, Servos Front, Bartos, Frank Loops Ba			_			•
Control Devices and Systems: Do Sight Glass Level Survail- Iance Automatically. Servo and Stepper, Both Used in Tank Gage, Blickley, George. April 51 Tank Gaging Transmitter Per- forms More Functions, Blick- ley, George. Aug 44 Control Devices and Systems: Dual PLCs, LAN for Control Synergy. Aug 45 Control Devices and Systems: Neural Nets Now Offer Cost- Effective Visual Inspection. July 22 LOCAL AREA NETWORKS Commentary: Getting Control Loope Back in the Field, Loope Back in the Field, Description of the Institute Processing Control Devices and Systems: Neural Nets Now Offer Cost- Effective Visual Inspection. July 22 Local Area Networks Commentary: Getting Control Loope Back in the Field, Simplified Electronics for Posi-	I PURI			Control, Kompass,ward Jan 117	see Data Orspiay	POWER SUPPLIES AND
Do Sight Glass Level Survail- lance Automatically. Feb 28 Control Devices and Systems: Feven. Blickley, George				Control Business Directions:	MOTION CONTROL	
Iance Automatically. Feb 28 Control Devices and Systems: Servo and Stepper, Both Used in Tank Gage, Blickley, George Blickley, George April 81 Tank Gaging Transmitter Performs More Functions, Blickley, Igeorge Aug 44 Control Devices and Systems: Dual PLCs, LAN for Control Systems: Dual PLCs, LAN for Control Systems: Neural Nets Now Ofter Cost- Effective Visual Inspection, Speed Up, Simplify Packag- Commentary: Getting Control Loops Back in the Field, Servos Front, Bartos, Frank. Speed Up, Simplify Packag- ing Line Via Small PLC-Based Starters, Babb, Michael. Sept 50 Applications: Motor Controller Solves Conveyor Glitch, July 23 DC Drives Stifl Have Miles to Ga Before They Sleep, Bartos, Frank Aug Bef						
Servo and Stepper, Both Used in Tank Gage, Blickley, Georgie — Better,			28			
In Tank Gage, Blickley, George April 81 Control Devices and Systems: Dual PLCs, LAN for Control Synergy, LOCAL AREA NETWORKS Commentary: Getting Control Loops Back in the Field, Local Server Forms More Functions, Blick- ley, George Aug 44 Control Devices and Systems: Neural Nets Now Offer Cost- Effective Visual Inspection, Control Devices and Systems: Neural Nets Now Offer Cost- Effective Visual Inspection, Control Devices and Systems: Neural Nets Now Offer Cost- Effective Visual Inspection, Control Devices and Systems: Neural Nets Now Offer Cost- Effective Visual Inspection, Control Devices and Systems: Speed Up, Simplify Packag- ing Line Via Small PLC-Based Solves Conveyor Glitch, July2E 32 DC Drives Still Have Millies to Go Before They Sleep, Bartos, Frank. Aug 48 Advanced Pressure Sensor De- signs Benefit Control Tomorrow, Graebert, Eric. Feb 66 It's Not All Quiet on the Electric Servos Front, Bartos, Frank. Aug 48 Advanced Pressure Sensor De- signs Benefit Control Servos Front, Bartos, Frank. Servos Front, Bartos, Frank. Servos Front, Bartos, Frank. Solves Conveyor Glitch, July2E 32 DC Drives Still Have Millies to Go Before They Sleep, Bartos, Frank Millies Molico Con- torol All ernaitive for Today and Tomorrow, Graebert, Eric. Feb 66 It's Not All Quiet on the Electric Servos Front, Bartos, Frank. Aug 48 Advanced Pressure Sensor De- signs Benefit Control Systems. Solves Conveyor Glitch, July2E 32 DC Drives Still Have Millies to Go Before They Sleep, Bartos, Frank Millies Molico Con- torol Allernaitive for Today and Tomorrow, Graebert, Eric. Feb 66 It's Not All Quiet on the Electric Servos Front, Bartos, Frank. Aug 48 Advanced Pressure Sensor De- signs Benefit Control Systems. Solves Conveyor Glitch, July2E 32 DC Drives Still Have Millies to Go Before They Sleep, Bartos, Frank Millies Molico Con- torol Allernaitive for Today and Tomorrow, Graebert, Eric. Feb 66 It's Not All Quiet on the Electric Servos Front, Bartos, Frank Millies Today and Tomorrow, Graebert, Eric. Feb 66 Front Sensor Devices Sensor De- si					Applications: Motor Controller	
George April 81 Control Devices and Systems: Tank Gaging Transmitter Performs More Functions, Blick- ley, George Aug 44 Control Devices and Systems: Neural Nets Now Offer Costs Effective Visual Inspection, July 22 LOCAL AREA NETWORKS Commentary: Getting Control Loope Back in the Field, Local Service Front, Bartos, Frank. Aug 45 Control Devices and Systems: Neural Nets Now Offer Costs Effective Visual Inspection, July 22 Control Devices and Systems: Speed Up, Simplify Packag- ing Line Via Small PLC-Based DC Drives Still Have Milles to Go Before They Sleep, Bartos, Frank Milles to Go Before They Sleep, Bartos						Processing, April 36
torms More Functions, Blick- ley, George Aug 44 Control Devices and Systems: Neural Nets Now Offer Cost- Effective Visual Inspection, July 22 Electrohydraulics: Motion Con- trol Alternative for Today and Tomorrow, Graebert, Eric Feb 66 LOCAL AREA NETWORKS Control Devices and Systems: Commentary: Getting Control Loope Back in the Field, ing Line Via Small PLC-Based Simplified Electronics for Posi- signs Benefit Control Sys- tems, Stockdaire, Robert 1 Tomorrow, Graebert, Eric Feb 66 PROCESS CONTROL Advanced Pressure Sensor De- signs Benefit Control Sys- tems, Stockdaire, Robert 1 Tomorrow, Graebert, Eric Feb 66 Frank Motion Con- trol Alternative for Today and Tomorrow, Graebert, Eric Feb 66 Fronk Stockdaire, Robert 1 Tomorr	George	. Aprii	81	Control Devices and Systems:		DOLEGINE
ley, George						
Neural Nets Now Offer Cost- Feb 56 LOCAL AREA NETWORKS Commentary: Getting Control Loops Back in the Field, Ing Line Via Small PLC-Based Neural Nets Now Offer Cost- Effective Visual Inspection, July 22 Local AREA NETWORKS Commentary: Getting Control Loops Back in the Field, Ing Line Via Small PLC-Based Simplified Electronics for Posi-			**			
LOCAL AREA NETWORKS Commentary: Getting Control Loope Back in the Field, ing Line Via Small PLC-Based Effective Visual Inspection. July 22 Tomorrow, Graebert, Eric Feb 66 PROCESS CONTROL Avanced Pressure Sensor Designs ignored in the Field, ing Line Via Small PLC-Based Simplified Electronics for Posisions Signs Benefit Control Sys-	ay, George	. Aug				tems, Stockdale, Robert June 59
LOCAL AREA NETWORKS Commentary: Getting Control Loope Back in the Field, ing Line Via Small PLC-Based Simplified Electronics for Posisions Signs Benefit Control Sys-						
Commentary: Getting Control Speed Up, Simplify Packag- Loops Back in the Field, ing Line Via Small PLC-Based Simplified Electronics for Posi- signs Benefit Control Sys-	LOCAL AREA NETWORKS				It's Not All Quiet on the Electric	
Loops Back in the Field, ing Line Via Small PLC-Based Simplified Electronics for Posi-	Commentary: Getting Control	4		Speed Up, Simplify Packag-		
Kompass Filward Oct 261 Controls Mar 48 lico Sansino Bruce Ian Fab 53 Iams, Stockdale Robert June 1	Loops Back in the Field			ing Line Via Small PLC-Based		
manifest same and an animal management and an animal same in an animal same in an	Kompass, Edward	. Oct	261	Controls, Mar 48	tion Sensing, Bruce, Ian Feb 63	tems, Stockdare, Hobert June 59

CONTROL **ENGINEERING** FDITORIAL INDEX

Applications: Toxic Chromium	· ·	04	Tank Gaging Transmitter Per-		
Removal,	UIYZE	91	forms More Functions, Blick- ley, George	Aug	44
felise, Nick	July	28	Up Front: A Quarter DIN with the Works,	April	9
Put Real Power in Digital Loop Controllers, Kompass,			Up Front: Valve Actuator Has Built-In Controller,	May	9
Edward	July	89	DROCK ANNA DI E I OCIC		
Do Sight Glass Level Surveil- lance Automatically,	Feb	28	PROGRAMMABLE LOGIC CONTROLLERS		
Control Devices and Systems: Real-Time Power Measure-			8th Annual Programmable Con- troller Update, Flynn, Raymond	Mar	22
ment Improves Paper Pulp Processing,	April	36	Allen-Bradley Hoists 1771 Flag: Says It Will Wave Forever,	POPUL	00
Expert System Applications in Advanced Control Systems,			Babb, Michael	April	85
Kompass, Edward	July	51	An Open Architecture, VMEbus PLC, Laduzinsky, Alan	Oct	161
Neural Network Software As- sists Expert System, Verduin,			Applications: PLC Voice Adviso-		00
William	July	37	ry, Alarm, and Monitoring,, Building a Stronger PLC Line	July2E	26
New Controller Has Full Graph- ics Display, Babb, Michael	Oct	105	Brick by Brick, Babb, Michael	Mar	54
Object Oriented Process Appli- cations Come to the PC, Man-		-	Control Engineering Forum: Emergency Shutdown Sys- temsWhich Way: Relays or		
Process Controllers of 1991:	eb2E	,	Pt.Cs?, Wadi, Issam Control Devices and Systems:	Mar	144
Radical Change in the Wind, Bailey, Samuel	April	64	Bricks: Make Them Faster, Better,	June	38
Quality Control Seeks a Plant- wide Image in Process Indus-			Control Devices and Systems:	-	
tries, Bartos, Frank Single Scanning IR Thermome-	June	50	Dual PLCs, LAN for Control Synergy,	Jan	36
ter Replaces Up to Ten Sen- sors, Morris, Henry	June	70	Control Devices and Systems: Speed Up, Simplify Packag-		
Taking On-Line pH Analyzers'			ing Line Via Small PLC-Based Controls,	Mar	48
Magical Mystery Tour, Mor- ris, Henry	July	43	DCS Melds Analog, Digital I/O,	000	0.4
Trends in Control: From Gunk to Pieces, Ledgerwood,			Stoffel, Jane	OCI	94
Byron	May	162	Franson, Deborah	Mar	78
Architecture, Babb, Michael	Feb	34	Modicon's 984 Re-emerges As a VMEbus Controller, Babb,		
PROCESS CONTROL SYSTE	MS		One Way to Integrate Multiven-	June	54
Control Devices and Systems: MPU-based System Auto-			dor PLCs, Laduzinsky, Alan	Mar2E	57
mates Complex Engine Lubri-	Aug	20	Programming Allen-Bradley PLCs with Third-Party Soft-		
cant Tests,	Aug	30	ware, Pollard, Jeremy	Oct	153
Stoffel, Jane Unit Control system Opens its	Oct	94	The Next Step In PLC Support Software, Hager, Bob	Feb2E	39
Architecture, Babb, Michael	Feb	34	The PLC Giants: Investing In The Future of Automation,		
PROCESS CONTROL VALVE Valves	S, se	0	Up Front: A-B PLC to connect	Mar	
			to Genius I/O?, Up Front: Food Industry Big on	Mar	9
PROCESS CONTROLLERS Applications: Carbon Control			PLCs,	July	7
System for the Small User,	July2E	17	PROGRAMMING, see Softw	vare.	
Clear Vision of Fuzzy Logic, In- felise, Nick	July	28	Control	,	
Commentary on Control: Let's Put Real Power in Digital			Q		
Loop Controllers, Kompass, Edward	July	89			
Commentary on Control: To-			QUALITY CONTROL		
ward Closed-Loop Control- lers That Work, Kompass,			Control Devices and Systems: MPU-based System Auto-		
Edward	May	161	mates Complex Engine Lubri-		
Evaluating Feedback Control- lers Challenges Users and Vendors, Shinskey, F	Sept	75	Control Devices and Systems: Neural Nets Now Offer Cost-	Aug	30
New Controller Has Full Graphics Display, Babb, Michael		105	Effective Visual Inspection,	July	22
Process Controllers of 1991: Radical Change in the Wind,	-		Japanese Apply Quality Ethic To Evaluating Technology, Morris, Keith	Augi 9	14
Bailey, Samuel	April	64	Quality Control Seeks a Plant-	- guid	16
Single-Point I/O Boosts Con- troller Family, Babb, Michael	April	47	wide Image in Process Indus- tries, Bartos, Frank	June	50
Talking About The Next Gener- ation Controller, Laduzinsky,			QualityAutomation Needs It, CIM Speeds It, Laduzinsky,		
	Mar25	70	Alan	June	45

1 R	
RECORDERS Recorders and Indicators Exert a Cohesive Force in On-line Quality, Balley, Samuel	Jan 57
RELAYS Control Engineering Forum: Emergency Shutdown SystemsWhich Way: Relays or PLCs?, Wadi, Issam Up Front: Electromechanicals Shine in Relay Land,	Mar 144 April 9
RISCs (REDUCED INSTRUCT SET COMPUTERS), see Int Circuits	
S	
SAFETY Control Engineering Forum: Emergency Shutdown SystemsWhich Way: Relays or PLCs?, Wadi, Issam	Mar 144
SENSORS Advanced Pressure Sensor Designs Benefit Control Systems, Stockdale, Robert	June 59
Applications: Toxic Chromium Removal,	luly2E 91
Load Cells To Circle The Globe,	May 40
ment Improves Paper Pulp Processing,	April 36
Sensors Meet 1991's Chal- lenges, Mcrris, Henry	April 75
Process Variable Metrics, Bailey, S Level Measurement Choices,	Oct 131
Blickley, George	Aug 39
Microsensors Enhance Process Variable Transmitters' Abili-	April 53
New Coriolis Meter Cuts Pres- sure Drop in Half, Babb,	Oct 122
Michael	Oct 85
a Hard Hat, Morris, Henry Servo and Stepper, Both Used in Tank Gage, Blickley,	May 55
Single Scanning IR Thermome- ter Replaces Up to Ten Sen-	April 81
Taking On-Line pH Analyzers' Magical Mystery Tour, Mor-	June 70
Tank Gaging Transmitter Per- forms More Functions, Blick-	July 43
ley, George	Aug 44
Uses Sigma Delta A/D, Using Thermal Mass Flow to Meet Clean Air Requirements, Blickley, George	July 7 Oct 101
SERVOS Commentary on Control: Computer Control and PID Algorithms, Kompass, Edward Commentary on Control: Toward Closed-Loop Controllers That Work, Kompass,	June 113
Edward	May 161
trol Alternative for Today and Tomorrow, Graebert, Eric	Feb 66

Improving Control Loop Pe

			_		
Up Front: End Run Around	Taking Care of Business, Ladu-	T	-	Mesucora Highlights PLCs and	
Unix: OS/3?, Mar 9	zinsky, Alan Mar2E 31			Measurement Techniques,	
VAX Control Software Offers	Valves and Actuators Changing				Sept 59
Off-the-Shelf Convenience,	to Meet Standards and Regu-	TEMPERATURE		NMW Draws Large Crowds,	
Stoffel, Jane June 65	lations, Blickley, George Oct 111	Applications: Carbon Control		Mooney, John A	-
What You Get Is What You See,	Where's Mine?, Laduzinsky,	System for the Small User, Ju	IV2E 17	Up Front: Bravo for BIAS,	Jan 9
Laduzinsky, Alan Oct2E 59	Alan Mar2E 27	Single Scanning IR Thermome-	,		
Where's Mine?, Laduzinsky,	World Market Demands Spawn	ter Replaces Up to Ten Sen-		V	
Alan Mar2E 27	Innovative Enclosure De-		June 70		
Windows 3.0 Leads Next Wave	signs, Stockdale, Robert Feb 52	Up Front: New Transmitter		VALVES	
of OI Software innovation,	***********	Uses Sigma Delta A/D,	July 7	Commentary: Getting Control	
Morin, Dennis Oct2E 63	STATISTICAL CONTROL			Loops Back in the Field,	
X Windows Comes To Real-	Quality Control Seeks a Plant-	TEST EQUIPMENT		Kompass, Edward	Oct 261
Time Operating Systems,	wide Image in Process Indus-			Commentary: Why Control	00.00
Glenn, Lee Mar2E 67	tries, Bartos, Frank June 50	Control Devices and Systems: MPU-based System Auto-		Needs Smart Actuators.	
	CTERRED MOTORS A	mates Complex Engine Lubri-		Kompass, Edward	Sept 147
SPEECH SYNTHESIS AND	STEPPER MOTORS, see Actuators	cant Tests,	Aug 30	Limitorque Enters DCS Market,	oop.
RECOGNITION	SYSTEM ANALYSIS AND DESIGN	Portable Test Equipment Dons	muy su	Stockdale, Robert	May 8
Applications: PLC Voice Adviso-		a Hard Hat, Morris, Henry	May 55	Up Front: Valve Actuator Has	may o
ry, Alarm, and Monitoring, July2E 26	Control Architectures of the 90s: Style, Structure, and Us-		may 33	Butt-in Controller	May 1
ry, Alarm, and Monitoring, July2E 20	age, Laduzinsky, Alan Mar2E 25	VXIbus for Automated Testing, Seibert, Iris	A 60	Valves and Actuators Changing	may
		Seibert, Ins	Aug 59	to Meet Standards and Regu-	
STANDARDS	Forum: Emergency Shutdown			lations, Blickley, George	Oct 11
Applications: Standardization	SystemsWhich Way: Relays or PLCs?, Wadi, Issam Mar 144	TEST, including Production 1	Testing	lations, bliosey, deorge	00111
Through CIM, July2E 101		Control Devices and Systems:		VISION, see Machine Vision	
Control Architectures of the	Forum: Functional Analysis,	MPU-based System Auto-			
90s: Style, Structure, and Us-	Translating Control Theory Into Practice, VanDoren,	mates Complex Engine Lubri-		W	
age, Laduzinsky, Alan Mar2E 25		cant Tests,	Aug 30		
Control International: Standardi-		VXIbus for Automated Testing,		WEIGHING & BATCHING	
zation: People and Size Will	Ground Loops: What They Are,	Seibert, Iris	Aug 59	DCS Melds Analog, Digital I/O,	
Make Difference, Boult,	And How to Avoid Them,			Stoffel, Jane	Oct 9
Raymond Feb 20	Gunn, Ronn May 75	TRADE SHOWS		Integrated Supervisory, Real-	
Editorial: ISO 9000: The Ticking	Hydraulic Control System Anal-	10th Control Expo Showcases		Time Control for Batch Appli-	
Bomb, Part 1, Babb, Michael April 45	ysis Using Network Simula- tion, Sikora, Mark Sept 70	Global Automation, Flynn,		cations, Tappert, Andrew	Mar 8
Editorial: ISO 9000: The Ticking		Raymond	May 47	WIRING	
Bomb, Part 2, Babb, Michael May 45	Improving Control Loop Per-	Commentary on Control: More			
Evaluating Feedback Control-	formanceWithout The Math, St. Clair, David	Comments on Changes in In-		Ground Loops: What They Are,	
lers Challenges Users and		dustrial Control, Kompass,		And How to Avoid Them,	May 7
Vendors, Shinskey, F Sept 75	Integrated Supervisory, Real-	Edward	April 135	Gunn, Ronn	may /
Factory Instrumentation Proto-	Time Control for Batch Appli-	IPC Conference and Exposition		Nothing Works Until It's Hooked	
col: Model, Products and	cations, Tappert, Andrew Mar 81	Celebrates 20th Anniversary,		Up By Cable and Wire, Mor-	Mar 6
Tools, Thomesse, J Sept 65	SYSTEM INTEGRATORS	Franson, Deborah	Mar 78	ris, Henry	Mar 8
Smart Transmitter Users Speak	Trends in Control: An Integra-	ISA/91 Conference and New			
Out for Global Standardiza-	tor's Opportunity, Ledger-	Product Introduction Guide ,		WORKSTATIONS, see Comp	uter
tion Stockriele Bohert Sent 55	wood Byron Eah 108	Elven Revended	Oct 64	Perinheral Devices	

New from Control Engineering: A Reference Guide to PID Tuning

\$14.95 Per Copy -- Order Yours Today!

PID (proportional-integral-derivative) is the basic algorithm used in a variety of industrial control applications. Tuning PID controllers is an extremely important topic among control engineers.

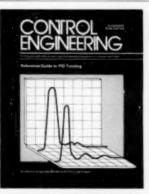
Control Engineering has compiled a collection of articles, starting with the original, classic Ziegler-Nichols Optimum Settings for Automatic Controllers, and continuing with articles published in Control Engineering, such as:

- A Comparison of Controller Tuning Techniques (December '67)
- Find Out How Good That PID Tuning Really Is (July '88)
- Tuning of PID Controls of Different Structures (July '88)
- PID Controller Tuning Using Standard Form Optimization (March '89)

For only \$14.95 per copy, you'll have many of the most influential articles on the subject at your fingertips. Order your copy of this collection today, to give you the history of this important innovation

in control systems, and to keep you current on PID tuning techniques.

Mail in the coupon below, along with your check or money order or Visa/Mastercard number (orders must be prepaid) to receive this timely collection.



ence Guid	e to PID Tu	ning (\$14.95	ntrol Engineering's Refer- each). Make checks pay-
	HNERS RE		RVICES. Mastercard
			Exp
Name			
Address _			
City		State	Zip
mail to:	1350 E. To Des Plaine	s, IL 60018	